The Builder.

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Walk and Talk in Rome.

THE ROMAN FORUM! Who, without emotion, can wander for the first or hundredth time over those classic purlieus? Yet, for many, first impressions here may be strangely conflicting,—a mixture of wonder, delight, provoked surprise, and disappointment, at that spectacle of the grandeur of ruin, and of the injuries done by man, the false taste that has impaired, the neglect that has sacrificed, the noble relics left by antiquity. Without political prejudice the conclusion may, indeed, force itself on our acceptance that no civilized government *could* have treated the precious bequest from ancient empire and art with more palpable abuse, misappropriation, or outrageous indifference than are chargeable against that of Papal Rome, from the realities presented to view on the Forum! Study and observation may, indeed, lead us to qualify this sentence; and the efforts of the present century to restore or reclaim persuade us to consider the error of ages past to some extent atoned for. We see here evidences of the natural action of an absolute ecclesiastic rule—supreme regard to religious with comparative indifference to antiquarian as, generally, to material interests; for within the narrow limits circumscribing this renowned area have sprung up five churches, two with their adjacent convents, not to mention others once, but no longer, standing here, and the same half-dozen still existing in the immediate vicinity,—this in a region where population is almost null! Yet, if everything modern in this quarter be either paltry or vulgar, the churches of the worst possible style, the scanty houses mean or obtrusive; there are, notwithstanding, those redeeming features observable amidst all the squalor and disorder of Italian (especially Roman) scenes that produce an *ensemble* picturesque and romantic: frivolity, worldly ostentation, have *not* intruded themselves; and there is a certain harmony even amidst the grotesque appositions and bewildering contrasts at this chief centre of Rome's antiquities.

The controversies kept up for the last three hundred years as to the boundaries of the Forum have been set at rest by Niebuhr, Bunsen, Canina; and, since the recent discovery of the Julian Basilica, we see, determined beyond all doubt, the original plan and direction; not, as assumed by the antiquaries of the seventeenth century, followed by Nibby and Burton, from east to west; but from north to south-east. Curious is the story of conflicting theories that centre in that narrow space, where not only the antiquaries of the sixteenth and seventeenth centuries, but writers and illustrated works of the present, have assigned misnomers to every relic of the past, mistake as to whose origin was possible. Montfaucon, with all the learning manifested in his "Antiquité Expliquée," could see in the Basilica of Maxentius the Temple of Peace, Vespasian's foundation, though no feature or arrangement proper to a fane of Pagan worship is traceable in those ruins. Flaminius Vacca, the sculptor, an esteemed authority on Rome in the sixteenth century, assumed the church of St. Cosmos and Damian to be, "*nihil dubii*," the Temple of Romulus and Remus, who certainly never had a sanctuary dedicated to their joint worship.* Tournon, minister of the French Government during the occupation of Rome under the first Napoleon, in his very carefully drawn-up work on the statistics of this city and her provinces, shows us the condition of the Forum before those excavations which the French initiated, and the Papal authorities, after the restoration in 1814, completed; almost every ruin at that period being to about half its elevation buried in the ground!

Entering within this Classic area, our attention naturally directs itself first to the most strikingly grouped objects on the slope under the Capitol, with the advantageous circumstance of a background alike antique,—that Tabularium, which was not perfectly cleared from mean encumbrances till 1839; the architect, Azzurri, effecting this by the removal of paltry buildings long left to cluster in front. The massive structure, in quadrilateral blocks of volcanic tufa from Gabii (*lapis Gabina*), is referable to different periods anterior to the Empire;—its basement walls to the year of Rome, 578; the first story to 594; and the higher, which has still the traces (rather than remains) of a Doric portico, with arcades, all, save one, now built up, to A.U.C. 675, or 79 B.C. The Arch of Septimius Severus remained half underground till 1811, though an earlier clearing of its purlieus had been ordered by Pius VII.; and till 1803 the two lateral archways that pierce it were left filled up by paltry shops,† accumulations having gathered around it, even since excavations, partially effected, with a view to isolating its structure, under Leo X.; a second time in the sixteenth; and again in the seventeenth century. More impressive than the reliefs on its surface, which so convince us of the deep decline of Roman art at the opening of the third century, are the moral meanings conveyed by the record, in the epigraph on its ponderous attic, of that remorse which so agonized the fratricide emperor, that every memorial and image of his murdered brother threw him into a passion of grief: in the fourth and part of the third line the cavities for the letters, once filled with bronze, exhibit irregularity in the holes for nails once fastening that metal; and a species of erasure can be detected by close inspection on the marble surface, leading to the inference that the names and titles of Geta originally came next to those of Septimius Severus and M. Aurelius Antoninus (Caracalla), here designated, in the *substituted* line, *P. P. Optimis Fortissimisque Principibus*. One is glad to be convinced by Canina's arguments, in his "Esposizione Topografica," that the curved elevation terminating in a circular structure at one end (the other being still under earth), brought to light not many years ago, at our left, below the Septimian Arch, is no other than the *Rostra Veteres*, one of the two tribunes for public speaking on the Forum, distinguished from the other rostra, in front of the Senate House, as that for harangues immediately addressed to the people,—for *popular*, whilst the latter was for *forensic* oratory. From the time that the Senate began occasionally to assemble in the adjacent Temple of Concord, this also was used by its conscript fathers when speaking to the public in the open air; and, following that example, the Tribunes ever after made their harangues from these rostra, on which stood appropriately an ædicula to the "Genius of the People," besides the altar on a platform near that curved basement, whose brickwork still retains a remnant of marble incrustation. Historically venerable as it is, perhaps deepest interest will be excited by the tragic remembrance that here, on the circular pulpit at that extremity near the arch, was exposed the head of Cicero by Antony's order, after the Triumvir's wife had vented her unwomanly hatred on the sacred relic. That Temple of Concord, where the sublime orator addressed the Senate on occasion of, and to denounce, the Catiline conspiracy, had long been imagined to exist in the ruins of Saturn's Temple, further westward on the same hill; till in 1817 was uncovered all left—a stylobate paved with precious marbles and strewn with magnificent architectonic fragments (now mostly in the Museum of the Tabularium), immediately below the Capitoline buildings; on a threshold-stone near which were still seen the concave forms of Mercury's caduceus, Concord's symbol, once inlaid with bronze. But the extant remains are not those of the fane dedicated under the dictatorship of Camillus; being referable (as Canina assumes) to the restoration by Tiberius; or else to that other, after the conflagration of this temple in the revolt against Vitellius, effected by the Flavian emperors. Vespasian's Temple, long mistaken for that of Jupiter Tonans, and now represented only by three superb fluted columns (Corinthian) with a remarkably rich entablature, was restored by Severus and Caracalla, as recorded in the epigraph seen and copied by a pilgrim in the eighth century, but now extant only in the imperfect word "estituer" (*restituerunt*); and this beautiful ruin had actually remained more than half interred till 1811; when, before removing the soil heaped up nearly to the border of its capitals, it was deemed necessary to inspect the shafts and basements; excavating for which purpose, it was found that the columns had been pared away around their bases, to use their marble for some modern decoration; a horizontal channel having enabled the despoilers to reach them! In consequence of which, they had to be restored with travertine, and the whole entablature taken down before its weight could be entrusted to a support yet uncertain, as thus enfeebled by Vandal misuse. The adjacent and long-disputed-on Temple of Saturn marks the site where the primæval altar to that deity was erected,—by Hercules in the mythologic, by the Pelasgians in the historic account,—and where stood the Ærarium, behind its cella, in two compartments, the inner called *sanctior*, because containing a deposit only to be used in extreme urgency. Here, too, was kept a treasure of another description,—the ashes of Orestes, reckoned among the "seven fatal things,"—*fatal*, in the sense of mysterious sanctity,—bound up with the destinies of Rome; and near this temple's front, the victor, ascending the Capitol in solemn triumph, used to arrest the progress of his chariot for giving the order (rarely omitted) to inflict death on the captives in the Mamertine prisons, who had just before been led away from that gorgeous procession to the last horrific scene of their humiliation and sufferings. One can look with little pleasure on the lately re-erected portico of the twelve Dii Consenti, beyond that temple, on an elevated platform at the angle between the Tabularium and the embankment of a modern road that winds up to the Capitol on this side: its effect is, like the "new cloth on an old garment," inappropriate and trivial; and, to supply the requisite nine columns with Corinthian capitals, five shafts of smooth travertine have been companioned with four others,—the antique, of fluted marble, two modern with seven antique capitals, the architrave and cornice alike of patchwork, the original epigraph preserved, and another, against the wall near the row of quadrate chambers, also restored to represent the *sacella* of the deities, setting forth in pompous terms that

* The valuable Latin work on Roman antiquities by this artist has never, that we are aware, been edited, but is amply quoted from by Montfaucon in his "Diarium Italicum."

† The works ordered by that pope were suspended owing to public vicissitudes.

this work was accomplished under Pius IX., in 1858.

A spacious excavated area enables us to look down upon the stylobate of the Julian Basilica, forming the western boundary to the Forum; disinterred, as another long epigraph here informs us, in the seventh year of the present pontificate; and though but a waste of marble pavement, mutilated ornamental fragments, and stunted brick pilasters; still a feature that adds solemnity, in its vague grandeur of decay, to the scene of illustrious ruin.

> Tully was not more eloquent than thou,
> Thou nameless column with the buried base,

is a couplet of Byron's no longer applicable to the isolated Corinthian column on a lofty plinth with steps, the spoil from some edifice of a superior art epoch (probably the Antonine), and long supposed the member of a portico, till, in 1813, the soil was cleared around its quadrangular staircase and basement, displaying the inscription that tells its dedication by the Exarch Smaragdus, A.D. 608, to the Emperor Phocas, one of the most infamous and blood-stained of the Byzantine despots, but here addressed as *Optimo Clementis Pirissimoque*, and by Gregory the Great written to in letters full of deferential loyalty (to counsel, not indeed to approve his conduct), evincing how that pontiff accepted his position of subject to the Greek Empire. It appeared, in result of the excavations, that the ancient level had been encumbered, around this column, to a height of at least six feet, from some early period in the Middle Ages, and that towers had risen around it for feudal masters about the beginning of the twelfth century. The foundations are formed by a congeries of wrought marbles, broken and cut by instruments to be thus used for purposes baser than their original ones. Turning to the area's eastern limits we first notice the circular temple now serving as vestibule to the church *S.S. Cosma a Damiano*, the earliest to rise within the Forum, built by Pope Felix IV., about A.D. 530; vaguely styled throughout the Middle Ages the Temple of Romulus Remus, or both, and first designated by Bunsen, on far more plausible theories, the *Ædes Penatium*. No ancient writers, nor even the Regionaries, have mentioned this edifice; but, from the style of its brick masonry, and the marble ornaments of its portal, also from the two imperfect columns of cipollino, with the fragment of an architrave, now near the door of a contiguous oratory, it is argued that the Diocletian period may be conjectured; and those columns probably belonged to a portico in front, advancing before the circular building, as in the plan of the Pantheon. Since the modernization of this church by Urban VIII. the original level of the whole, both in its Christian and Pagan construction, has become subterranean, but may still be inspected by torchlight; and the crypt thus formed, since the seventeenth century, is open for public services on two festivals every year. It was here that Flaminius Vacca saw dug up the unique, though very imperfect, plan of Rome, chiselled on marble slabs, supposed of the time of Severus or Caracalla, now in the Capatoline Museum. The German archæologists first recognized, in the remains behind this church,—an immense construction in quadrilateral peperino blocks, inclosed in a narrow court, and not often accessible through its gateway,—that superb Temple of Peace, raised by Vespasian after his triumphs in Palestine; applied also to the purposes of an art-museum and library; but which, with all its treasures, became a prey to the flames under Commodus. Emil Braun conjectures that the fragments of colossal statues now in a court of the Capitoline Palace may be remnants saved from its sculptures. Another precious deposit laid there by Vespasian is known to have been rescued during the conflagration,—those sacred vessels from the Temple of Jerusalem exhibited in the emperor's triumph, and represented on the Arch of Titus. We learn that they were removed when the fire broke out at the imperial palace; carried away from the Palatine with other costliest spoils by Genseric (as Procopius informs us, l. ii. cap. x.); by that conqueror brought to Carthage, but soon to be removed when that city was taken by Belisarius, who carried them to Constantinople, again to be exhibited at a public triumph: from Constantinople they finally returned to Jerusalem, as an offering of Justinian to a church there founded by him; and the last trace we can obtain of these sacred spoils is one resting merely on the conjecture that they were a *fourth* time among the prizes of victory, a *second* time transported from Jerusalem on the Christian city's capture by the Persian Chosroes, A.D. 614. One may be amazed at the barren ugliness of the church *S. Lorenzo in Miranda*, raised with wretched taste inside the portico and cella (mostly preserved) of the temple to Antoninus Pius and Faustina,—a noble ruin with columns of green-veined carystian marble (cipollino), with a frieze above the lateral walls of the cella, adorned with graceful reliefs, still perfect, of griffins, vases, and candelabra; once ascended to from the Via Sacra by a staircase of twenty-one steps, but now so deeply buried in earth, though an excavated area opens in front (the result of works undertaken in 1810, allowing us to look down to the basements of those pillars), that not one step of that approach is left uncovered. The lower line of the dedication, *Divæ Faustinæ ex S. C.*, was the sole original inscription; the upper, *Divo Antonino*, being added on an architrave placed above that bearing the former line, after the emperor's death, to whom this fane was then dedicated conjointly with his wife—so little deserving of his confidence or her posthumous honours. In the Middle Ages were thrown up houses against the columns of this majestic portico: and for the roofing or rafters deep grooves were cut in their shafts at about half their altitude then above ground, as the disfigurement still visible too plainly shows.

Near the Forum's south-western angle stands the noblest ruin in sight, of all the most disputed on by archæologists, who have given no fewer than twenty designations to those three fluted columns of Greek marbles with a splendid entablature, successively regarded as the Græcostasis, the Temple of Castor and Pollux, that of Jupiter Stator, and (by Montfaucon) that of Julius Cæsar, &c. Bunsen supposed it dedicated to Minerva Chalcidica, but connected, as a sacred forecourt, with the Curia, or Senate-house; whilst Canina argues, and most ably, that it can be no other than the Curia Julia itself,—a theory, indeed, reflecting the highest interest on its majestic remnant. The original Curia Hostilia (as its story is interestingly traced by him), after being enlarged and embellished by Sylla, became a prey to the flames on occasion of the funeral of Clodius, described by Cicero in the oration, "pro Milone;" after which its rebuilding was entrusted to Faustus, Sylla's son. Under pretext of raising a temple to Felicity (but in reality out of hatred to that leader's memory), this new edifice was soon taken down by Lepidus, and another Curia ordered to be built by Julius Cæsar, which Augustus completed under dedication to his adoptive father, "Divo Cæsari." We see all left of its portico of eight front and fourteen lateral columns, in which the tribunes assisted to examine the decrees of the Senate, but never to enter within that august body's proper penetralia—a quadrangular hall 75 feet square, external to which was the *Minervæum*, with the statue of the Goddess of Wisdom. In that portico stood the altar and image of Victory, to whom each senator offered incense before entering to deliberate in the inner hall, and respecting which effigy arose a vehement controversy in later ages. Removed, as an object of idolatry, by Constantine, it was restored by Julian; suffered to remain by that emperor's first successors; but again removed by Gratian, in the year 379; nor could the Pagan party, represented by Symmacus, succeed in their efforts to secure its restoration, first in 382, and again two years later; the emperor refusing to listen or even receive the deputation sent for promoting that suit in the interest of the fallen worship. This subject brings us to consider the Forum and its aspects under Christian influences and in mediæval times, for which we must here pause in our ramble among its ruins.

LIGHTHOUSES IN FRANCE.

NOTES OF THE NEW LAMPS FOR LENTICULAR LANTERNS.

AUGUSTIN FRESNEL,* while constructing his first lens, applied himself, in concert with Arago, to devise lamps capable of furnishing a much larger and more brilliant light than that of the lamps in ancient reflecting lighthouses.

Lamps with multiplied wicks, of which the first idea was given by Rumford, were the results of Fresnel's experiments; but he confined his essays to the best form of wick; regulating its height, the supply of air, lowering or raising the chimney, &c.; not paying any attention to the mechanism for furnishing a steady supply of oil to the burner. They were content to use, till a few years ago, a superior reservoir, where the oil was maintained at a constant level. Several improvements since the researches of Fresnel had been suggested; unattended, however, with satisfactory results; so that the evils attending an irregular supply of oil still continued. Whether they were of clockwork machinery, on the ancient system, or those of Lepante and Wagner, the arrangements were always similar to those of the Carcel lamp of commerce: a mechanism more or less delicate in workmanship, moved by a weight and placed at the lower portion of the lamp, gave an alternate motion to pumps placed in the upper part, and these furnished the quantity of oil which has been considered necessary for the best combustion, viz., about *four times the quantity consumed*. Whatever the mechanism may be it is obliged to be constructed with the greatest precision, and therefore contains very delicate portions. To take to pieces all this mechanism once a year at least, besides sundry repairs, &c., necessary from time to time, was a difficult duty to be confided to lighthouse keepers, who are in general not apt for such work. Thus it became necessary for each lighthouse to be provided with three lamps in working order; especially as, when one got out of order, it was obliged to be sent to Paris to be repaired. This, in some foreign countries, where there were no means of repairing them, was one of the causes of the non-adoption of lenticular lanterns. Among the many faults in this sort of lamp the principal one is the irregularity in the supply of oil, owing to the opening and shutting of the leather valves. When the flame of a lamp has attained its maximum effect, the slightest diminution of the supply of oil causes the flame to become elongated and give out smoke. Thus the keepers, to avoid continually touching the wicks, keep the flame always a little too low, and so lessen the very effect for which the beacon was constructed. To remedy all these inconveniences, Mr. Degrand, engineer of the ponts and chaussées, has constructed lamps by which a weight acts on the surface of the oil as the spring does in the moderator lamp of commerce.

The following is a description of one of Mr. Degrand's lamps of the first order, with four concentric wicks:—To the body of the lamp, of cylindrical form, a cast-iron piston, with a leather collar, is fitted and loaded with weights. The piston is raised by means of a chain attached to its centre, and to a wrought-iron shaft, turned by a winch, at the upper portion of the cylinder. The weights are of lead, in tin cases, and fitted to cavities made for them in the piston, according to the required pressure. A tube, concealed in one of the ornamental bronze ribs of the lamp, connects the lower portion of the cylinder with the burner by the ordinary means. This is all the mechanism absolutely necessary for the lamp; so that, when the piston is at the top of the cylinder, and the latter filled with oil, the weight presses on the surface and forces the liquid into the burner. Though, strictly speaking, this is all the machinery necessary, the pressure of the piston is continually diminishing as it descends; and some additional machinery is therefore adapted analogous to that called the moderating contrivance in the moderator lamps.

To effect this, the shaft on which the piston

* See illustration of North Foreland lighthouse in the *Builder* of August 23, 1858.

chain is wound is threaded on a portion of its length, and fitted with a movable nut with a projecting pin sliding horizontally in a small groove parallel to the shaft. This pin is connected with a rod regulating the opening of the supply tube in such a manner that when the piston is at its height the supply is at a minimum, and gradually increasing according as the piston descends.

In constructing these lamps the inventor, Mr. Degrand, proposed to obtain a reduction in the cost of the general apparatus, but the constructors would not condescend to any reduction of importance, and a lamp of the first order costs still about 26*l*. At all events, the new lamps are made more ornamental, and sometimes entirely of bronze or brass; instead of, as formerly, an envelop of tin sustained by a framework of roughly-wrought iron. The modern lamps have also bronze ornamental stands.

The lamp above described is 14·5 inches internal diameter; length of cylinder, 22·6 inches; stroke of piston, about 18 inches. When the piston is raised and the cylinder filled, the pressure, neglecting friction, necessary to force the oil as far as the burner, is equivalent to a column of oil about 14·2 inches high. After twelve hours of combustion the level of the liquid has fallen about 4·3 inches, and the pressure increased to a column of oil 18·5 inches. But, owing to the friction of the piston and the number of bends in the feed-pipe, this is below the real force required, and a greater pressure must be applied.

If we were to suppress the moderating screw altogether, and to load the piston with a weight of 220 lb., there would be nothing extraordinary in so doing. This weight applied to the above lamp would be equivalent, taking into account all friction, &c., to a column of oil 3·28 feet high; capable of producing, at the moment of lighting, an actual velocity of supply corresponding to a column of oil 25·2 inches, roughly calculated at about 5 feet 11 inches per second. After twelve hours' illumination, the height of the column representing the pressure will be 4·3 inches less, or 20·9; and the velocity of the supply only 5 feet 1 inch per second. If, now, instead of a moderator at the extremity of the tube of ascension, we place a diaphragm perforated with a hole 0·034 of an inch diameter, we obtain, with due regard to the velocities given above, a supply per hour through the diaphragm of 7 lb. of oil at the commencement of the burning, and 6 lb. at the end. The regular supply calculated for a lamp of this power should be 6·6 lb. per hour; but this need not be so rigorously adhered to, as a lamp can burn as well with a supply of 7 lb. or 6 lb.

In fine, by disposing the diaphragm, as in the lamps recently patented by Lepante, with a conical screw to adjust the orifice; the keeper, by merely loosening it a little, can always obtain his regular supply.

These lamps, without the moderator, can be constructed at a very low cost compared with the others. Those furnished with clockwork adjustment are about 28*l*. each; but it is most probable that they are soon to be set aside all through France.

Mr. Degrand, through the kindness of the inspector-general, director of the lighthouses, sent an assortment of the above lamps, in 1851, to be tried at the mouth of the river Cauche; and in 1858 they were in perfect working order. Similar ones have been executed for the lighthouse of Belle Isle, and figured in the Paris Exhibition, 1855. Since that period the system has been extended, through France and Spain, to a great many lighthouses.

SOCIAL BRIDGES.

THE sympathy of the British people for distress and suffering is a national trait of character to which we may justly refer with some little pride. Of late years it has been shown in a striking manner; as in connexion with the disastrous commencement of the Crimean War; and more recently in the relief of the Indian Famine, and the Hartley Colliery Accident. In connexion with the latter, when the news of the sad event became known, it was thought that from 17,000*l*. to 18,000*l*. *might* be raised for the support of the widows and orphans; but nearly this sum was sent to the London Mansion House alone; and, up to the time of writing, upwards of 75,000*l*. has been subscribed by all classes of the community. Besides these occasional supplies, the extent of subscriptions for more permanent purposes, in the metropolis alone, is enormous. There are, for instance, such endowments as the Charter House, Westminster, City of London, Merchant Tailors', and other foundations and schools; the old hospitals, such as St. Bartholomew's, St. Thomas's, &c.; the numerous almshouses which are to be met with both in the throng of the town and in the suburbs; the charities of the corporate companies; the Foundling Hospital; and other establishments, which date their commencement before the beginning of the present century. It is, however, those institutions which have been more recently brought into use that we purpose just now more particularly to glance at.

At the present time there are not less than 530 charitable societies existing in London alone; and a sum of nearly two millions of money is annually spent by them; while the probable amount of alms distributed altogether is not less than three millions and a half sterling.

Notwithstanding all that has been done, and is still doing, there is need for new and most vigorous exertions; but, when we note the evils which still exist, and refer to the efforts which are being made, it is difficult to imagine the condition in which not only the metropolis, but also many other large towns, would now have been but for the social bridges which are such a means of usefulness. Although not confined to the London district, the British and Foreign Bible Society has been a source of great good; and, although it originated no longer ago than 1804, it has been instrumental in translating the Scriptures into 160 different languages or dialects, including 190 separate versions. In the United Kingdom there are now 3,728 auxiliary branches and associations. The number of issues during the last commercial year amounted to 594,650 copies of the Old Testament, and 544,901 copies of the New Testament; and during the year the receipts of this society from subscriptions and the sale of books amounted to 206,778*l*. 12s. 6d. There is also the Society for Promoting Christian Knowledge; which, during the same period, has issued 157,358 Bibles, and 78,234 New Testaments, besides Prayer-Books, tracts, and other publications. The receipts of this society amounted, in the year, in subscriptions, to 31,297*l*. 19s. 7d.; sale of publications, 81,516*l*. 6s. 8d.

Very recently we have had commenced open-air meetings; and Sunday preaching in the naves of Westminster Abbey and St. Paul's Cathedral; and in theatres and working men's churches. The London City Missionaries alone conducted 4,489 open-air services in the courts, alleys, streets, &c., of neglected and degraded neighbourhoods; and from May 1, 1860, to March 1, 1861, the number of persons who attended is given at 465,070. This most useful and valuable institution was only commenced in 1835; but from small beginnings it has grown; and now the staff of Missionaries consists of 389 earnest and intelligent men. Six of this body are appointed whose exclusive duty it is to visit the public-houses and coffee-shops of London. There are also three who devote their attention to the cabmen. The exertions which have been made in various ways are remarkable. Our space will not, however, allow us to go into detail; but we must mention that, in the year 1861, 1,815,332 visits were made, and nearly 3,000,000 tracts, &c., distributed. The income was 35,018*l*. 6s. 10d. The Church of England Scripture Readers' Society must not here be forgotten; for it is also a means of much benefit: its annual income is nearly 10,000*l*.

The Religious Tract Society, which now carries forward gigantic operations, was established no longer ago than 1799. Last year it issued 41,883,000 publications; 13,194,154 of which fall under the head of periodicals. Since the date above mentioned the issue has been 912,000,000. There are also free grants of books, tracts, &c., made by this Society to schools, village libraries, prisons, workhouses, soldiers, sailors, emigrants; and these tracts, &c., in the year numbered nearly 6,000,000, and were of over 6,000*l*. in value. In 1861, the entire receipts of this Society amounted to 103,127*l*. 16s. 11d.

Working on a smaller scale, but in similar spirit, are the Weekly Tract Society, the English Monthly Tract Society, the Book Society, &c.

Amongst other agencies which are in operation are the Temperance Associations, the National and British Schools, the Ragged Schools and Ragged School Unions, &c. The number of buildings now in existence in London appropriated to educational purposes amongst the very poorest is 176. The day-schools are attended by 17,230 scholars. The evening schools, of which there are 215, have 9,840 scholars; Sunday schools, 207 in number, have 25,260. By the exertions of teachers, &c., in course of the year, 1,800 boys have been placed in situations; and in connexion with them there are penny banks, clothing clubs, and reading-rooms. Amongst no class of London society is there so much need of assistance as amongst that for whom the Ragged Schools are intended; and it seems strange that the annual amount of subscriptions is under 6,000*l*.

The societies for improving the dwellings of the industrious and working classes, are so well known to our readers, that we need not now enter into particulars.

The condition of many female servants, who may be thrown out of situations, much needs consideration; and, with a view towards preventing the dangers to which they are exposed, a society has been formed to provide homes and registering offices for this part of our population; and, as this is greatly in want of support, it will be worth while to mention that these homes, &c., are situate in Nutford-place, Edgware-road; Hatton-garden, Holborn; Blackfriars-road, and Woodland-terrace, Greenwich. For a class which are beset by much temptation, there are also the Female Aid Society; the Girls' Laundry; and the Training Institutes for Young Servants; the Association for the aid and benefit of Dressmakers and Milliners; the Society for promoting the Employment of Women; the Young Women's Christian Association, &c.

In any review of social bridges such as these, however brief, we must not omit the places of refuge for destitute men and women. Amongst the most important are the Field-lane Refuge; the Dudley-street Refuge; a similar establishment in the Golden-lane district; the Society for Promoting the Relief of Destitution in the Metropolis; the House of Charity; the reformatories; penitentiaries for females; soup-kitchens, &c. Nor must we, in the list of preventive and persuasive agencies, neglect the Metropolitan Early-Closing Association; and the Metropolitan Evening Classes, which are greatly needed, and which we trust will be well supported by the many thousands of young men by whom they are much required.

The Society for the Suppression of Vice, established in 1802; the Associate Institution (date of commencement, 1844), for Improving and Enforcing the Laws for the Protection of Women; the Society for the Prevention of Cruelty to Animals (established 1824); the Society for Promoting the Due Observance of the Lord's Day;—these and many other social bridges, to which we have not room just now to refer, cannot fail to have beneficial effects. We know, however, how much more work is needed to be done; and trust that those classes whom so many are desirous of benefiting will endeavour to the utmost to improve themselves; and to take advantage of those means which the advanced intelligence of the age has placed at their disposal; for, at present, many of the efforts which are being made are paralyzed by the carelessness of those for whose benefit they are intended.

THE ALBERT MEMORIALS.

The National Memorial.—It will have been seen that our intimation of the abandonment of a monolithic obelisk was correct. The Queen's Committee, in their first report, say of the block of granite which they have been considering:—

"The length, which in the excavated portion already exceeds 115 feet, would, we consider, suffice for the intended obelisk. There appears, however, to be reason to apprehend that the width of the stone near the centre would be insufficient, according to the proportions of the most approved ancient examples, to be consistent with that height.

It is also by no means certain that the block referred to has the necessary thickness in those portions which are not yet cleared. An experienced contractor who has examined it has stated that nothing can be affirmed respecting the fitness of the stone 'until it be raised and turned out from its present bed.' For such operations a large outlay would be required; and we cannot but hesitate to recommend such outlay while we have no absolute certainty of a satisfactory result."

Afterwards they say:—

"While, therefore, we see no reason to conclude that success is absolutely unattainable, we believe that it would be accompanied by difficulties and by expenditure at present wholly incalculable. Nor can we refrain from expressing our serious doubts whether, even if the mere enterprise were successful, the ultimate effect would be such as to realize your Majesty's just and natural expectations."

General Grey, in reply, said:—

"Her Majesty sees, therefore, no alternative but to acquiesce in the abandonment of the idea of an obelisk, and to request the committee to turn their attention to the possibility of finding some other mode in which the great object in view may be most satisfactorily effected.

Her Majesty's wish is to leave the committee quite free to recommend whatever may appear to them to afford the best hope of a satisfactory result; and she would hereby throw out as a suggestion, whether the opinions of some of the foremost architects of the day might not be advantageously taken as to the means of combining the groups of statuary mentioned in my letter to the Lord Mayor (amongst which, of course, a statue of the Prince would be prominent), with some other design."

The Queen's Committee will not meet again till the 30th, when probably some course will be determined on.

An offer has been made to the Lord Mayor, through Mr. Henry Stevens, by the owners of a granite quarry in America, to place at the disposal of the committee a monolith, 140 feet long, close to the edge of the sea. It is understood, however, that the intention to have an obelisk is finally abandoned, and probably the question will not be re-opened. We may still hope to see our original proposition,—a Temple of Honour, telling, by means of all the arts, of the Prince's life and times,—resorted to.

The total amount subscribed to this date is something over 47,000*l.*

Maidenhead.—At a meeting held here to consider the propriety of making a parochial collection towards the central fund, it was resolved that a contribution should be solicited from every parishioner in the parish towards the Prince Consort Memorial Fund. At the meeting the parish was divided into districts, and working men consented to be collectors. The contribution will be one penny, or two shillings and sixpence, according to the ability of the giver.

Guildford.—The establishment of a Surrey County Hospital at Guildford as a memorial of the Prince is being mooted by a committee, who have issued a circular on the subject. The movement has the support of the Lord Lieutenant, the Earl of Onslow, the county members of Parliament, and many other influential gentlemen; and a public meeting was to be held on the 23rd of April; Mr. Samuel Gurney, M.P., in the chair; to consider the subject.

Hastings and St. Leonard's.—The Memorial Committee here have issued a specification to the effect that the space to be occupied by the tower which is proposed as a memorial is limited to 15 feet; and the amount to be expended, exclusive of the clock and four dials, to be 500*l.* It is not to be used for any commercial purpose.

Wolverhampton.—The movement set on foot in this town towards the erection of a local memorial is progressing satisfactorily. The list of subscriptions already promised amounts to 750*l.* At the council meeting last week, the mayor announced that Mr. Thorneycroft, the sculptor, who has undertaken to erect a statue at Liverpool, had intimated that he should be willing to erect an equestrian statue of the Prince in this town for 1,000*l.*; and that the site of the Russian gun in the Market-place was eligible for that purpose. The question as to whether the statue shall be placed on the pedestal upon which the gun rests, or whether a more suitable one shall be provided, will be brought before the subscribers at a public meeting which the mayor expressed his intention of calling.

Bristol.—The mayor has issued an address to his fellow-citizens, calling upon them for a warm response to the appeal which has been made to them for funds adequate to erect an "Albert Memorial" which shall be "an ornament and honour to the ancient city;" and to this end recommends the organization of parish committees, the members of which shall make a personal canvass of their respective districts.

Cheltenham.—At an influential meeting, to consider the communication received from the Lord Mayor of London, relative to the town of Cheltenham subscribing to the National Fund, it has been unanimously resolved, that it is desirable an effort should be made for the purpose of erecting in Cheltenham some appropriate edifice sacred to the memory of his late Royal Highness. Steps are to be forthwith taken to carry out the proposition.

Taunton.—A project has just been started to erect, on the parade of this town, a monument to perpetuate the memory of the Prince, the design for which is said to be a composition of architectural and sculptural art. The total height of the memorial will be 36 feet. On the four sides of the base, in panels, are medallions of the Queen, the royal arms, and the arms of the Prince: these, with carved and moulded details, form the base. There are four diapered columns of marble or coloured stone, at the back of which is an octagonal stone; and between the pillars, under arched canopies, are figures of art, science, literature, and agriculture: these will be six feet high. Above is a dome-like roof, upon which, on a carved shaft, stands a figure of the Prince. There is much ornament about the whole design. The estimated cost is 700*l.*

Scarborough.—Sir Joseph Paxton, who has been consulted as to the site of the proposed memorial, suggests the top of Oliver's Mount, and the mayor feels inclined to entertain the suggestion. The popular feeling in the town, hitherto, has been in favour of the St. Nicholas Cliff site; and it appears that about 200*l.* of the 560*l.* already promised to the Memorial Fund is contingent on that site being adopted. A committee has meantime been appointed at once to set about the work of obtaining subscriptions and making inquiries as to site, and to report to a future meeting.

The Scottish National Memorial.—The Duke of Buccleuch, on behalf of the acting central committee, has sent a circular to the conveners of local committees throughout Scotland, in which he says, "It is hoped that each local committee will take such measures as may appear to them best suited to remove the impression that any contribution is too small to be offered or received, as an indication of the donor's feelings. The committee feel that this memorial of a nation's admiration and sorrow for the Prince they have lost, and of sympathy with their Queen, would be incomplete if it could not be regarded as a memorial of the sentiments of all classes, the humblest as well as the highest. It is most desirable that means should be taken, and every effort made, to explain these views to the whole body of the people, and to facilitate to them as much as possible the payment of small contributions, by naming sub-committees and well-selected collectors in many places to receive them."

Glasgow.—At a meeting of the general committee for the erection of a memorial in Glasgow to the Prince, the site of the proposed statue or structure formed the principal topic of deliberation. It was suggested that the site upon which St. George's Church stands would form one of the best, or possibly the very best, within the bounds of Glasgow, as it would open up this part of the city, and the memorial would stand in the centre of an open "place." To effect this, it was proposed that the church should be removed further west; and it was estimated that a new site could be obtained and a new church erected for the sum of 8,000*l.* The subscriptions for the memorial, however, would be reserved for their own proper object. The meeting, which was a very influential one—comprising the Lord Provost, present and late members of Parliament, &c.,—thought so much of the suggestion, that they appointed a committee to consider the whole subject, and specially to inquire into the practicability of carrying it out. It is said, on the other hand, that one of the best sites for the memorial in Glasgow would be the West-End Park, near the elevated site where stand the Sebastopol guns.

Montrose.—There is talk here of a local memorial in preference to aiding the Scottish Central Memorial.

NATIONAL PORTRAITS.

IN this department of art there is no country more deficient of collections for public use. At Hampton Court, it is true, there are many good and original portraits, but chiefly of sovereigns and characters not entitled to peculiar veneration. Scattered through metropolitan buildings, such as Guildhall, some few worthies and benefactors grace the walls in solemn isolation. It is, however, in the British Museum that we find the most extensive and valuable collection; embracing kings, queens, poets, orators, generals, divines, and worthies, and those limned by the ablest masters of their respective times.

It might be expected that such a treasure, in the care of an institution the most signal for the careful and judicious assortment and arrangement of its manifold possessions in trust, should be set forth in the best light, and exhibited in the plainest order. What is the fact? Ninety-five veritable and original pictures are hung in five large rooms filled with cases, chiefly of the ornothological department, at an average height of 30 feet above the spectator!

The names or titles of the originals are inscribed upon the frames; and on most of them those of the painters and donors; but all this is a dead letter to the visitor of the Museum, if, perchance, a stray wanderer ever looks beyond the catalogued and instructive as well as more immediate objects of his pursuit, viz., — the collections of birds, beasts, fishes, antiquities, and curiosities of this unrivalled institute.

It is in no degree of objection or reproach that the misappropriation of this fine gallery of portraiture is made subject of remark: on the contrary, the writer offers his full meed of admiration for the inestimable advantages afforded by the admirable classification of all these accumulated wonders of ancient and modern art and ingenuity; as also for the boon (greater, if possible) of the glorious reading shrine that centres within the universal libraries of the Museum; but it would seem as if the department of pictorial art had no place in the comprehension of so many schools and wonders.

To discern the merits of a picture, or even its prominent points, at the distance in which they range, and under the shadow of the ceiling, in rooms lighted from above, is simply impossible. From the first impress the features of a Shakspeare, a Newton, a Prior, a Cromwell, a Marlborough, a Cranmer, an Elizabeth, Bluff Harry, and sundry ancient sages, kings, and queens, may be recognized; but they are beyond the field of inquisitive inspection, and wholly withdrawn from the test of critical appreciation: in fact, most of them are so beshadowed and obnubilated that the clumsiest copies might quite as well be substituted for gems of high art, such as many of them are: for instance, a noble landscape by Wœnix (the only one there) is utterly undiscernable!

With the greatest respect for the leading authorities of the Institution, it is suggested that a chamber, and it need not be a very large one, to contain the 95 pictures, together with 11 others, which are somewhere else in the Museum, be appropriated to exhibit these reliques; which are doubly valuable, inasmuch as they hand down to us the works of our earliest artists, and the verified similitudes of many historical characters who were illustrious for their virtues, their rank, or mayhap their vices.

The view of meritorious paintings is always a treat to persons of taste, and a school of instruction to the young and aspiring artist; but, to be either useful or entertaining, the subjects ought to be placed at the proper distance from the beholder. Thus the visitors who have studied Newton, or feasted on Shakspeare, sipped Prior, pitied Cranmer, or wondered at royal personations and heroes, might converse unreservedly with really speaking portraits.

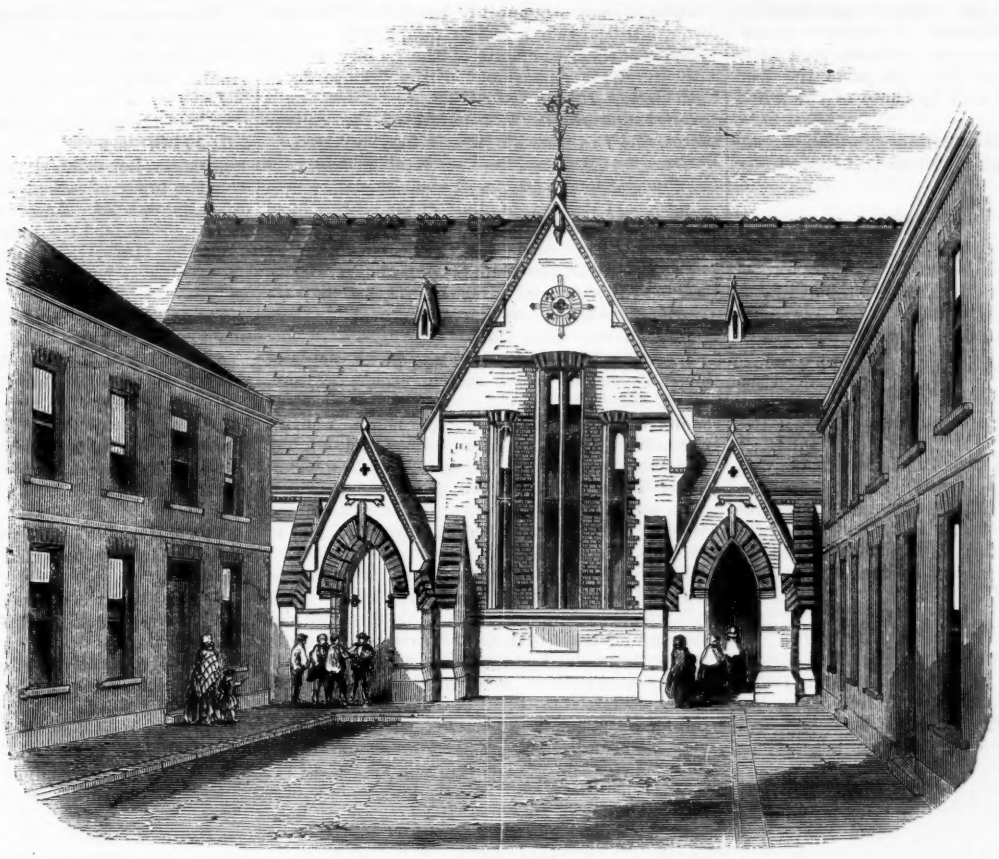
Might not a niche of the coming grand Exhibition be devoted advantageously to an introduction of these hitherto occulted characters to its million visitors? Surely the trustees of the Museum would grant the indulgence, and as surely would it it be appreciated.

TILE PAVEMENTS.

ARCHITECTURAL MUSEUM.

ON the 8th instant the Rev. Lord Alwyne Compton lectured on "Encaustic Tiles and Tile Pavements." Speaking of various ways of fixing the dates of tiles, the lecturer said,—"First, there were a few tiles that had got the date on them, as at Gloucester. There were other tiles, which were originally intended to be erected as a border to a wall, dated. There were tiles in Devonshire having dates, one of them being 1708. Then, when there was no date on the tiles, they could sometimes find out the date by the armorial bearings, but sometimes tiles were found without any armorial bearings; yet clues were found to distinct dates. But heraldry on tiles was of great use in fixing the dates. He next came to the question of the patterns for the fixing of the dates of tiles: it was not a very satisfactory one, but still it had much to do with the matter. Another mode by which dates were fixed was, examining inscriptions upon tiles. Another mode of finding dates was by examining carefully the portions of the building where the tiles were found. Such were the various modes of dating tiles; first, from dates actually on them; secondly, from armorial bearings; thirdly, from inscriptions; fourthly, from the patterns; and fifthly, from the buildings in which the tiles were found. Adopting this mode of examination, the rev. lecturer explained, by means of the drawings on the wall, the probable dates of a great number of tiles found in various buildings, as at Salisbury, Winchester, Westminster Abbey, various parts of London, Exeter, Rumsey, York, Leicester, Hampshire, Coventry, Bristol, and some other places. In some of the buildings the same pattern occurred again and again, but still of some patterns there was great variety, there being some slight difference in the design."

The lecturer then referred to the drawings on the wall, and fixed the probable dates of tiles occurring in Sussex, Buckinghamshire, Bedfordshire, Ely, Gloucestershire, Malvern, Devonshire, and various other places throughout this country. He wished next to speak of the arrangement of the tiles; and in arranging the tiles it was found that there were a great many examples of fragments of pavements, and of incomplete ones. As to a small room, it was usual to inclose it with tiles of one pattern; but when the room was



THE COLLYER MEMORIAL SCHOOLS, PECKHAM.——*Mr. J. G. Stapelton, Jun., Architect.*

larger, more patterns were introduced (which he explained by reference to drawings of tiles found in various parts of the country, and from which it was shown that the divisions of the three panels in a room were very different in different places). Then, as to the pavement of a whole church or cathedral, in that case a very peculiar pattern ran from column to column, and the whole of the aisles were richly paved. The whole of the pavement was next subdivided. The rev. lecturer, in the course of his observations on this part of his subject, observed that the green tiles of Mr. Minton combined most beautifully with red ones; and he explained drawings of a number of pavements found in different churches; first of specimens having a square of one pattern, and afterwards of pavements of a later date in which were found several patterns in the squares.

THE COLLYER MEMORIAL SCHOOLS.

WE publish the elevation of these schools, proposed to be erected in affectionate remembrance of the late Rev. William B. Collyer, LL.D., D.D., &c., whose gift of eloquence and cultivated mind gave him a distinguished place as a popular preacher in the metropolis for full thirty years.

Several friends, in conjunction with the Rev. R. W. Betts, his late colleague, are anxious to perpetuate his name by the erection of these schools, upon a freehold site in Peckham, at a cost of about 1,500*l.*, including the purchase of site.

The school is 60 feet long by 32 feet wide, capable of division, with a curtain in the centre, covered by an open-timbered roof, stained and varnished. On one side of the schools are two entrances and porches; on the other, infant school, class-rooms, and platform, covered by a cove. About 700*l.* have been already subscribed for this object.

The design is by Mr. James G. Stapelton, jun., who was appointed architect to the work by the committee.

A RAMBLE THROUGH LINCOLN'S INN.

IT is a remarkable feature of London how much in special districts different classes and pursuits are concentrated. We have an artists' district, a theatrical district, a district for foreigners, a weavers' district; and other crafts have their peculiar places of abode in which they congregate. In Kensington, at the time of the taking of the last census, there resided, all persons over twenty years of age, male and female, of the professional classes and of clergymen, barristers, solicitors, physicians, surgeons, authors, editors, painters, architects, men of science, music, school, and other masters, 3,103, in a population of 73,205; the number in every thousand being 42·4. At Whitechapel, in a population of 45,988 of the same class of persons, there were only 381 persons,—8·3 in each thousand of the population,—of the above class, and a large portion of those would be medical men. In Rotherhithe there are only three barristers and solicitors: in Kensington there reside a powerful army of 722. The total number of those professional persons within the metropolitan limits was over 47,000, and they constitute nearly one-fifth of the entire intellectual class distributed throughout Great Britain. Of these there are 5,863 lawyers, 5,631 doctors, 2,393 clergymen and ministers, and 11,210 subordinates; making altogether 22,097 persons belonging to the learned professions, besides persons not generally recognized as of the above class, of whom there were 1,195 literary men, 17,241 teachers, 156 professors of sciences, and 4,057 artists and architects. At the present time there is an average of more than 50,000 persons, the chief portion of them devoted to mental and intellectual pursuits.

Varied and marked are the different localities which the chief bulk of the Londoners, with both brain and hands, occupy for the purpose of residence, or for carrying on business. None of these, however, are more remarkable than the inns of law, which stretch, with but little interruption, from Gray's-inn-lane to the Temple.

In the Temple, in Gray's Inn, Lincoln's Inn, Furnival's Inn, Staple Inn, Serjeant's Inn, Clifford's Inn, Clement's Inn, Lyon's Inn, Symond's Inn, Barnard's Inn, and Thavies Inn, and in the streets and passages adjoining, are carried on the chief operations of the English law, and although its dignity is undoubted, there is carried on within this small but important district of the metropolis a vast amount of low and knavish practice.

Quaint and dingy-looking, and in several instances without any architectural features of note, are those precincts in which, in the midst of the roar and bustle of the City, a sort of monastic silence reigns. In most even of the smallest there are trees and other attempts at greenery, which look pleasant in their season.

In the buildings of most of the Inns of law, as in the chapels and halls, there are subjects of interest, which, although of no great age, would repay the visit of the antiquary: there are heraldic windows, memorials of departed lawyers, furniture, and other matters of past times; and it is not unpleasant, when leisure allows, to step aside from the crowded thoroughfares into those sanctums of the law;—from Chancery-lane, for instance, into Lincoln's Inn, where the Lord Chancellor of England may be seen sitting, with the mace and great seal of the kingdom before him, and surrounded by his officers and some of the most cunning in this formidable department of the law. There are also the courts of the Vice-Chancellors, and other judges—generally, in the interiors, of indifferent Tudor design, but wanting in stately or noble appearance. They are also inconvenient, and not too well ventilated; although, next after the places of religion, those in which justice is administered should be most cared for. If the interiors of the courts of Lincoln's Inn are deficient of good appearance and state, the exteriors are much worse: dwarfed and miserable they look, even in contrast with the Tudor entrance from Chancery-lane. We will, however, walk to a more pleasant portion of this inn, and look with pleasure at the turreted entrance from Lincoln's Inn-fields, which has been improved by the footpath now running round the railings of the enclosure,—an example which might be usefully followed in other squares of the metropolis. Some of the stone devices of this gateway are admirably designed and executed; the fine new hall, library, &c., form a structure creditable to the skill of this age; but marks of decay in the stonework are already evident. The gardens surrounding the hall, the terraces, trees, flowers, and green slopes of lawn, are pleasant to look on. Stone-buildings, which abut upon part of this green, with its long range of rusticated basement, Grecian capitals, and other good features, are remarkable for their extent and somewhat stately appearance. The part below what should have been the actual base is of unsightly brickwork: the ground which shows this, however, has been sloped away for the purpose of supplying light and air to the lower chambers: this is necessary from the bottom to the top of this great building: busy work is here going on; and in all directions may be seen bewildering piles of papers and parchments. Much care has evidently been taken here of the vegetation; and it is pleasant to see the daisies, in such a situation, growing amongst the grass.

Old-buildings, which reach southward from Stone-buildings to a considerable distance, contrast with Stone-buildings and the New Hall: here, in parts, the gables, highly-pitched roof, and

diamonded brickwork, show that they are as old as the gateway in Chancery-lane: some of the leadened glazings of the windows still remain: there are, however, evidences of extensive alterations which have been made, probably soon after the time of the Great Fire: in parts the lead frames have been replaced by those of thick and heavy woodwork.

On one of the buildings is a sun-dial, of bold proportions and design, on which is inscribed—

"T.
Rt Hon^ble
W. P.
1794.
Qua redit nescitis Horam."

This has been restored in 1848. In the pediment at the top is a shield of arms.

There is another sun-dial, on which is inscribed

"T.
W. S.
1840."

And the motto, "*Ex hoc momento Pendet Æternitis.*"

In part of Old-buildings the domed bell-tower, surmounted by a vane of goodiron work, the gables, chimneys of strange shapes, the uncouth devices of the smoke doctor, who seems to have been kept in good practice in all parts of this inn, present an appearance which cannot be considered either picturesque or beautiful.

An archway, above which is T. M. A. 1737, and a black lion rampant on a shield, leads to the curious basement of the chapel: the attempt at Gothic work by one whose taste and skill were devoted to another style of architecture is a curious study: the general appearance has not a bad effect; but, on looking into details, the feeling excited is most unpleasant. Under the shadow of the groined roof, which is only in part finished with bosses, and the massive and dwarfed columns, are the tombstones of several persons who have been connected with this place: one of these is a mutilated memorial, on which is,—

"Phillipus
Bridall A +
4th Oct., 1699."

There is one of the date 1695. The last interment seems to have taken place in 1851. There are some memorials of interest on the staircase leading to the chapel, and in the chapel itself, which latter, notwithstanding its imperfections, is worthy of examination: it is open for service every morning, and twice on each Sunday.

Old-buildings are continued to New-square, where may be noted some vine and fig trees. The New-square is more modern than the buildings just mentioned. Here seems to be the head-quarters of the "Devil's Own" Volunteers. Above are the royal arms: the lion supports are very hirsute. This carving may have been here at the time of the last great war. The gateway leading to Carey-street, although an attempt at the Tudor style, is an example of decayed taste. On one side is "T W * D 1697," a black lion rampant on a gold shield. On the other side is the same, with the addition of the initials A. S. in old English. In the centre is "T. C. T. S. 1848." and at each side "T. N. G. C. 1818." The parts surrounding Lincoln's-inn are noticed in Bishop's-court, Chichester-rents, Bell-yard, &c. There are some very old houses and shops near the gate just mentioned: some shops are stuck up against the main building: these in former days have probably been book-stalls. After a margin of offices and shops of booksellers and law-stationers, there are, unfortunately, in nearly all directions, masses of squalid dwellings, with misery and neglect, which it is sad to contemplate. It would be worth while for wealthy members of the bar to dive occasionally into these regions, where good might be done by supporting the schools and other institutions which are here struggling into existence.

ELEVATION OF THE PRINCIPAL TOWNS OF FRANCE, AND THE SUMMITS OF PUBLIC BUILDINGS.

THE following is a statement of the heights above the sea of the principal towns of France, and of the summits of the principal buildings, which served as points for triangulation in the trigonometrical surveys of that country. It will be valuble to tourists for reference hereafter. The numbers represent English feet.

Bourg (Ain).—Summit of the lantern of the church of Nôtre Dame, 902·6; level of ground, 745·1; difference, 157·5.

Laon (Aisne).—Summit of the ball of the clock tower, 821·9; ground, 592·2: diff., 229·7.

Soissons (*id.*).—Summit of the gallery of the cathedral, 374·0; pavement of the "Place de la Cathedrale," 161·8; diff., 212·2.

Saint Quentin (*id.*).—Summit of the college turret, 538·7; ground, 342·5; diff., 196·2.

Briançon (Hautes-Alpes).—Western tower of the church, 4502·3; ground, 4335·5; diff., 166 8.

Mézières (Ardennes).—Ball of small cupola of steeple, 712·3; cill of entrance door, 561·1; diff., 151·2.

Pamiers (Ariège).—Summit of cathedral tower, 1087·9; cill of doorway, 939·6; diff., 148·3.

Saint-Girons (*id.*).—Steeple summit, 1427·9; ground, 1276·6; diff., 151·3.

Troyes (Aube).—Turret of the south angle of the cathedral of Saint Pierre, 592·2; ground, 360·9; diff., 231·3.

Carcassonne (Aude).—Parapet of St. Vincent tower, 505·3; ground, 340·2; diff., 165·1.

Limaux (*id.*)—Summit of spire, 711·3; ground, 537·8; diff., 173·5.

Narbonne (*id.*).—Summit of turret of the north tower of the cathedral, 235·9; pavement of church, 42·6; diff., 193·3.

Castelnaudary (*id.*).—Summit of ball of stone spire, 773·6; ground, 608·9; diff., 164·7.

Rodez (Aveyron).—Summit of head of Virgin, surmounting the tower of Nôtre Dame, 2326·9; ground of the sacristy, 2073·6; diff., 253·3.

Villefranche (*id.*).—Steeple summit, 1066·9; ground, 876·3; diff., 190·6.

Marseilles (Bouches-du-Rhone).—Summit of ball of steeple of Les Acoules, 230 6; street pavement, 55·7; diff., 174·9.

Aix (*id*).—Steeple of Cathedral of St. Sauveur, 835·0; ground, 672·3; diff., 162·7.

Bayeux (Calvados).—Foot of cross on cathedral steeple, 397·0; ground, 153·9; diff., 243·1.

Angoulême (Charente).—Summit of steeple of St. Pierre, 491·1; ground of church, 300·1; diff., 191 0.

La Rochelle (Charente-Infér.).—Tower of the lantern, 198·8; cill of the guard-house, 27·9; diff., 170 9.

Marennes (*id*).—Summit of steeple, 287·8; ground, 33·5; diff., 254·3.

Saintes (*id*).—Summit of St. Eutrope Church, 281·5; pavement before church door, 89·9; diff., 191·6.

Bourges (Cher).—Clock turret of St. Etienne Church, 739·2; ground, 512·8; diff., 226·4.

Tulle (Corrèze).—Summit of ball of steeple, 935·1; ground, 702·5; diff., 232·6.

Dijon (Côte-d'Or).—Ball of the steeple of St. Benigne, 1109·3; cill of principal doorway, 806·1; diff., 303·2.

Beaune (*id.*).—Summit of ball of lantern of Nôtre Dame, 894·0; cill of principal doorway, 722·1; diff., 171·9.

Dinau (Côtes-du-Nord).—Lantern of steeple of St. Sauveur, 426 5; pavement of the church, 239·5; diff., 187·0.

Guincamp (*id.*).—Summit of steeple, 437·7; landing of the steps, 145 0; diff., 292·7.

Périgueux (Dordogne).—Summit of steeple, 517·4; ground, 321·2; diff., 196·2.

Portarlier (Doubs).—Upper ball of steeple, 2910·6; ground, 2748·8; diff., 161·8.

Evreux (Eure).—Ball of cathedral spire, 456·4; interior pavement of cathedral near lateral door, 218·2; diff., 238·2.

Chartres (Eure-et-Loir).—Summit of new steeple of cathedral, 878·5; ground of church, 517·4; diff., 361·1.

Quimper (Finistère).—Cathedral of St. Corentin, summit of north spire, 195·2; "pavé des Sonneurs," 21·0; diff., 174·2.

Toulouse (Haute-Garonne).—Summit of the steeple of St. Sernin, 670·0; ground, 456·4; diff., 213·6.

Lectoure (Gers).—Balustrade of steeple, 745·1; ground, 590 9; diff., 154·2.

Bordeaux (Gironde).—Summit of ball of west spire of cathedral, 286 8: interior pavement, 21·7; diff., 265·1.

Bazas (*id.*).—Summit of steeple, 437 0; ground, 259·9; diff., 177·1.

Redon (Ille-et-Vilaine).—Summit of spire, 259·8; ground, 41·0; diff., 218 8.

Tours (Indre-et-Loire).—Summit of north tower of cathedral, 404·2; ground, 181·8; diff., 222·4.

Loches (*id.*).—Summit of grand tower, 464·3; ground, 284·0; diff., 180·3.

Poligny (Jura).—Base of lantern of steeple of St. Hippolyte, 1,223·5; ground, 1,064·4; diff., 159·1.

Blois (Loir-et-Cher).—Summit of the upper cupola of the tower of St. Louis, 506·6; ground, 335·0; diff., 170·6.

Romorautin (*id.*).—Steeple summit, 443·9; exterior ground, 280·2; diff., 162·7.

Vendôme (*id.*).—Summit of abbey spire, 533·5; ground, 277·2; diff., 256·3.

Le Puy (Haute-Loire).—Summit of grand steeple of the cathedral, 2,421·4; ground, 2,250·1; diff., 171·3.

Nantes (Loire-Inférieure).—Summit of roof over the tower of cathedral, 241·8; ground, 61·7; diff., 180·8. *Id.* Tower of Launay.—Summit, 221·8; ground, 41·0; diff., 180·8.

Orleans (Loiret).—Summit of steeple of Sainte-Croix, 644·1; pavement of church, 381·6; diff., 262·5.

Pithiviers (*id.*).—Summit of spire, 609; ground, 393·4; diff., 215·6.

Gien (*id.*)—Ball of lantern-tower, 669 6; ground, 499·0; diff., 170·6.

Cahors (Lot).—Summit of cathedral steeple, 556·8; cill of principal doorway on level with Place Royale, 405·2; diff., 151·6.

Agen (Lot-et-Garonne).—Summit of balustrade of cathedral steeple, 291·0; ground, 140·0; diff., 151·0.

Mende (Lozère).—North spire of cathedral, under the ball, 2679·9; cill of west door, 2426·3; diff., 253·6.

Angers (Maine-et-Loire).—Summit of spire of south tower of cathedral, 399·6; ground, 154·2; diff., 245·4.

Saint-Lo (Manche).—Summit of north spire, 323·5; cill of principal door of Nôtre Dame church, 108·6; diff., 214·9.

Coutances (*id*).—Summit of leaden tower of cathedral, 481·3; ground, 301·5: diff., 179·8.

Valonges (*id*).—Summit of the highest spire, 248·3; cill of principal doorway, 100·7; diff., 147·6.

Chalons-sur-Marne (Marne).—Summit of north spire of the cathedral, 494·1; ground at porch, 268·4; diff., 225·7.

Rheims (*id.*)—Summit of pyramidal roof of north tower of cathedral, 543·7; level of interior under the tower, 282·5; diff., 261·2.

Sainte-Menehould (*id.*)—Summit of pinnacle of steeple, 649·3; pavement of the "Place" opposite Hôtel de Ville, 453·4; diff., 195·9.

Vitry-le-Français (*id.*)—Ball of the north cathedral tower, 492·8; cill of doorway to tower stairs, 332·4; diff., 160·4.

Langres (Haute-Marne).—Summit of college steeple, 1724·8; ground, 1551·9; diff., 172·9.

Nancy (Meurthe).—Centre of ball of steeple, 902·6; ground, 654·9; diff., 247·7.

Luneville (*id.*)—Head of the statue on the north tower, 966·3; ground at first step of the flight, 769·7; diff., 196·6.

Metz (Moselle).—Cathedral spire, base of the least one, 839·0; interior pavement immediately under, 580·7; diff., 258·3.

Nevers (Nièvre).—Steeple of the cathedral, tower of St. Cyr, summit of cross, 871·4; ditto, base of cross, 838·6; ground, 658·8; differences, 212·6 and 179·8.

Clamecy (*id.*)—Summit of steeple, 694·9; ground, 516·8; diff., 178·1.

Lille (Nord).—Ball of the lantern of the dome of the Madeleine, 235·9; ground, 77·8; diff., 158·1.

Douai (*id.*).—Summit of tower of St. Pierre, 279·2; ground, 78.4; diff., 200·8.

Dunkerque (*id.*).—Pavilion tower, platform, 198·8; ground, 25·6; diff., 173·2.

Hazebrouck (*id.*).—Summit of spire, 297·6; ground, 58·4; diff., 239·2.

Avesne (*id.*).—Summit of church-tower, 755·3; ground, 564·3; diff., 191·0.

Cambrai (*id.*).—Summit of ball of tower of Saint Gery, 436·4; ground, 175·2; diff., 261·2.

Valenciennes (*id.*).—Summit of belfry, 263·8; ground, 84·6; diff., 179·2.

Beauvais (Oise).—Steeple of St. Pierre, 429·5; ground, 232·0; diff., 197·5.

Senlis (*id.*).—Summit of St. Jacques's steeple, 507·6; ground, 245·8; diff., 261·8.

Argentan (*Orne*).—Summit of great ball of St. Germain steeple, 705·7; street pavement, 545·3; diff., 160·4.

Anas (Pas-de-Calais).—Foot of the belfry lion, 462 6; ground, 218·5; diff., 244·1.

Béthune (*id.*).—Summit of steeple of St. Vaast, 270·3; pavement of church, 103,0; diff., 167·3.

Saint-Omer (*id.*).—Foot of telegraph ladder, 238·2; cill of principal door of the church, 75·5; diff., 162·7.

Clermond-Ferrand (Puy-de-Dôme).—Summit of the largest of the two balls surmounting the cupola of the cathedral, 1531·2; ground, 1336·0; diff., 195·2.

Bayonne (Basses-Pyrenées).—Summit of cathedral steeple, 201·1; ground under nave, 37·7; diff., 163·4.

Strasbourg (Bas-Rhin).—Summit of cathedral spire, 939·0; pavement of the church, 472·8; diff., 466·2.

Schélesladt (*id.*).—Balustrade of cathedral, 755·3; ground, 565 0; diff., 190 3.

Colmar (Haut-Rhin).—Cathedral lantern of steeple, 824·5; ground, 640·1; diff., 184·4.

Mâcon (Saone-et-Loire).—Summit of St. Vincent tower, 752·7; ground, 605·3; diff., 147·4.

Autun (*id.*).—Summit of Cathedral steeple, 1497·1; pavement of the grand nave, 1243·8; diff., 253·3.

Châlon-sur-Saone (*id.*).—Summit of the ball of the St. Pierre steeple, 749 0; ground, 585·3; diff., 163 7.

Le Mans (Sarthe).—Foot of cross on St. Julien's Tower, 448·2; ground, 251·0; diff., 191·2.

Saint Calais (*id.*).—Summit of steeple, 495·1; ground, 337·9; diff., 157·2.

Paris (Seine).—Summit of lantern of Pantheon, 472·1; interior pavement, 198·8; diff., 273·3.

Saint Denis (*id.*).—Ball of spire, 392·1; pavement of church, 108·6; diff., 283·5.

Meaux (Seine-et-Marne).—Summit of the pinnacle opposite to that by which the tower of the cathedral is entered, 410·8; ground, 191·0; diff., 219·8.

Provins (*id.*).—Balustrade of lantern of steeple of Saint Quirace, 597·1; ground, 446·5; diff., 150·6.

Versailles (Seine-et-Oise).—Ball of the steeple of St. Louis, 602·4; first step of church, 403·6; diff., 198 8.

Pontoise (*id.*).—Summit of lantern of steeple, 307·8; ground, 160·1; diff., 147·7.

Rouen (Seine-Inférieure).—Summit of cathedral spire, 320·9; foot of north tower of façade, 70·9; diff., 250·0.

Neufchâtel (*id.*)—Summit of steeple, 457·0; ground, 302·5; diff., 154·5.

Amiens (Somme).—Foot of cross on cathedral spire, 445·2; ground, 118·1; diff., 327·1.

Niort (Deux-Sèvres).—Summit of steeple of Nôtre Dame, 342·2; ground, 95·8; diff., 246·4.

Bressuire (*id.*).—Steeple summit, 789·1; ground, 606 0; diff., 183·1.

Alby (Tarn).—Turret or pinnacle of the cathedral (summit), 798 9; ground, 554·5; diff., 244·4.

Montauban (Tarn-et-Garonne).—Summit of steeple of Saint Jacques, 491·8; Place des Oules, north of church, 318 6; diff., 173·2.

Fontenai (Vendée).—Summit of Nôtre Dame steeple, 333·7; ground, 74·8; diff., 258·9.

Loudun (Vienne).—Summit of the stone spire, 510·2; ground, 360 6; diff., 149 6.

Limoges (Haute-Vienne).—Summit of the church of St. Michel-des-Lions, 1122·4; pavement of church, 941·6; diff., 180·8.

Mirecourt (Vosges).—Ball of spire, 1065·3; ground of the arcade before entrance-door, 917·0; diff., 148·3.

Remiremont (*id.*).—Ball of the steeple, 1501·7; ground of church, 1323·5; diff., 178·2.

Saint-Dié (*id.*).—Ball of steeple of Saint Martin, 1293·7; ground of church, 1124·7; diff., 169 0.

Auxerre (Yonne).—Summit of the small cupola on the tower of St. Etienne, 624·1; ground, 400 3; diff., 223·8.

Sens (*id.*).—Summit of the tower of the cathedral, 487·9; ground, 250·7; diff., 237·2.

Public Buildings in Paris.—Pinnacle of the "Invalides," above pavement, 334·5; balustrade of towers of Nôtre Dame (*id.*), 216·5; column of Place Vendôme (*id.*), 141·1.

THE SOCIÉTÉ LIBRE DES BEAUX-ARTS, PARIS, AND "THE BUILDER."

THIS very useful and esteemed Society usually refer any artistical publication that comes under their notice to some member, who reports upon it to the general body. Such reports have been often made by them on our own journal, and one by M. Dufour appears in the present volume of "*Annales.*" To show the Society our appreciation of their good opinion, we print a translation of it.

It it be not in the power of every person to give himself up to the study of the fine arts, exclusive of other occupation, every intelligent man ought at least to consecrate his *leisure hours* to that study which offers a salutary distraction to the barren toils, the hurry, the deceptions of every-day life, and which replaces the mind in the high position it should always occupy.

It is because such is my firm conviction, gentlemen, that I solicited the honour of joining your ranks: this alone was my title to the distinction I craved; and, since you have been willing to accede to my request, allow me, on this my first occasion of addressing you, to express my full appreciation of the favour you have conferred upon me.

The lines that first attracted my attention in those numbers of the *Builder* that were confided to me for examination are under date December 7, 1861, and they treat significantly of the advantages of an artistic education. "There is," says the writer, "but little chance that the fine arts will, in England, take the position that is due to them until the system of education here adopted shall have undergone a complete change. Is it not absurd to neglect to teach a child drawing because is has never shown any taste for that art? This reasoning would not be tolerated with regard to the ordinary branches of education; for what father ever thinks to inquire if his son has exhibited a taste for grammar or geography?"

The author concludes with the aspiration, that ere long artistic education may come to be considered that which in reality it is,—a grand means of cultivating the mind, and a source of high intellectual enjoyment to those who shall have entered upon it, even should they only be able to master the elementary principles; and he adds, the more fully it is mastered the more perfect are the delights it affords.

These reflections struck me with their appropriateness. Just consider, among the crowds of persons whom fashion, or want of other occupation, leads to museums and other places, how few can form any adequate idea of the beauties they inclose? The greater number cast a hasty, unintelligent glance upon the treasures there collected: *oculos habent et non vident.*

On the other hand, what thoughts, what sensations, fill the mind of him who has been initiated into the science and faith of the beautiful, in presence of some Greek or Roman statue! Ancient civilization has vanished: the false gods are dethroned: time, revolutions, wars, have changed the face of the world; but those masterpieces of art which two thousand years ago won the admiration of the ancients, still produce upon us the same effect: alone they have triumphed over us—"*Des siècles impuissants qu'a vaincus leur beauté.*"

These reflections are a sublime encouragement to him who—painter, poet, or sculptor—can say with the unfortunate Chénier, "I have something here;" and who feels within himself the right to aspire to a like immortality.

To return to the *Builder*. In the number for the 30th of November, I find an article upon taste in design as applied to the industrial arts, and which consists in giving, to the most ordinary objects, an appearance of elegance and harmony: this, says the author, unfortunately is but seldom found amongst the English; and it existed almost universally among the ancients. In support of his assertion, he compares the vases and lamps of the moderns with the antique, and he expresses the regret, full of humour, that the use of tea had not obtained among the Greeks, because they would at least have left us a model for a tea-service, somewhat more graceful than that which we have found for ourselves. The writer ends by hoping that Government will offer annual and important prizes for the best designs in objects of common use; and that artists will set themselves to work to aid in this desired object. Michelangelo, Holbein, Albert Durer, says he, occupied themselves with these details; and it is to be regretted that there exists so little of the same spirit among artists of our time: let us endeavour to inculcate it.

In the number for the 7th of December there is an admirable article upon the artistic education that a person may give to himself, and showing how a simple mechanic may arrive at the possession of right ideas most useful to him in matters of art. Another article, in the number for the 21st of December, headed, "How shall we rise?" seems to me full of good advice and encouragement to those who, being nothing, desire to rise and to become something: all the ideas hang upon and develop one another, and I regret that the limits imposed will not permit me to translate the article in a simple notice like the present.

I will just mention, in passing, an account of a journey in France, because it bestows such great eulogium on the style of decoration pursued in our *cafés* and our shops.

I will conclude, gentlemen, with calling your attention to a lecture given by Mr. G. G. Scott, at the Royal Institute of British Architects, which appears to me remarkable; but which, being very long, it would be difficult to analyze briefly; besides which, it is not yet terminated. I shall therefore reserve all further mention of it for a succeeding report.

After what I have had the honour to lay before you, gentlemen, I think the universal opinion must be, that the conduct of the *Builder* is continued in a most excellent manner; and that this journal, if it has a wide circulation, must exercise in England a most beneficial influence.

THE SURROUNDINGS OF ST. PAUL'S.

IN the notice of the late James Elmes, no mention was made of a project of his, which, had it been adopted and properly carried out, would have been a most important architectural improvement, and would have rendered his name no less distinguished than that of his son. By entirely reshaping St. Paul's "Churchyard," he proposed to place Wren's majestic edifice in the centre of a piazza that would be not only regular in its plan, but also correspond in general outline with that of the cathedral itself, there being a small crescent on the north and south sides answering to the transepts and their semicircular porticoes, and a third on the east. Uniformity of character and design was to be kept up in the elevations also, so that the whole of its surroundings would be in accordance with, though duly subordinated to, the cathedral. The present area would not have been much enlarged, because, according to Elmes's plan, though the line of houses would have been considerably set back in some parts, in others it would have been brought forward. But of space around St. Paul's there is enough; it does not so much require addition as to be equalized.

Notwithstanding that it was set on foot under high auspices, and for a while seemed to promise success, poor Elmes's scheme came to nothing, as the death of the Duke of York—its ostensible patron—proved the death-blow to it; though wherefore it is rather difficult to understand, for it ought to have found sufficient patronage among the City people—those who, though they do not all of them reside within the sound of Bow Bells, make the City their California.

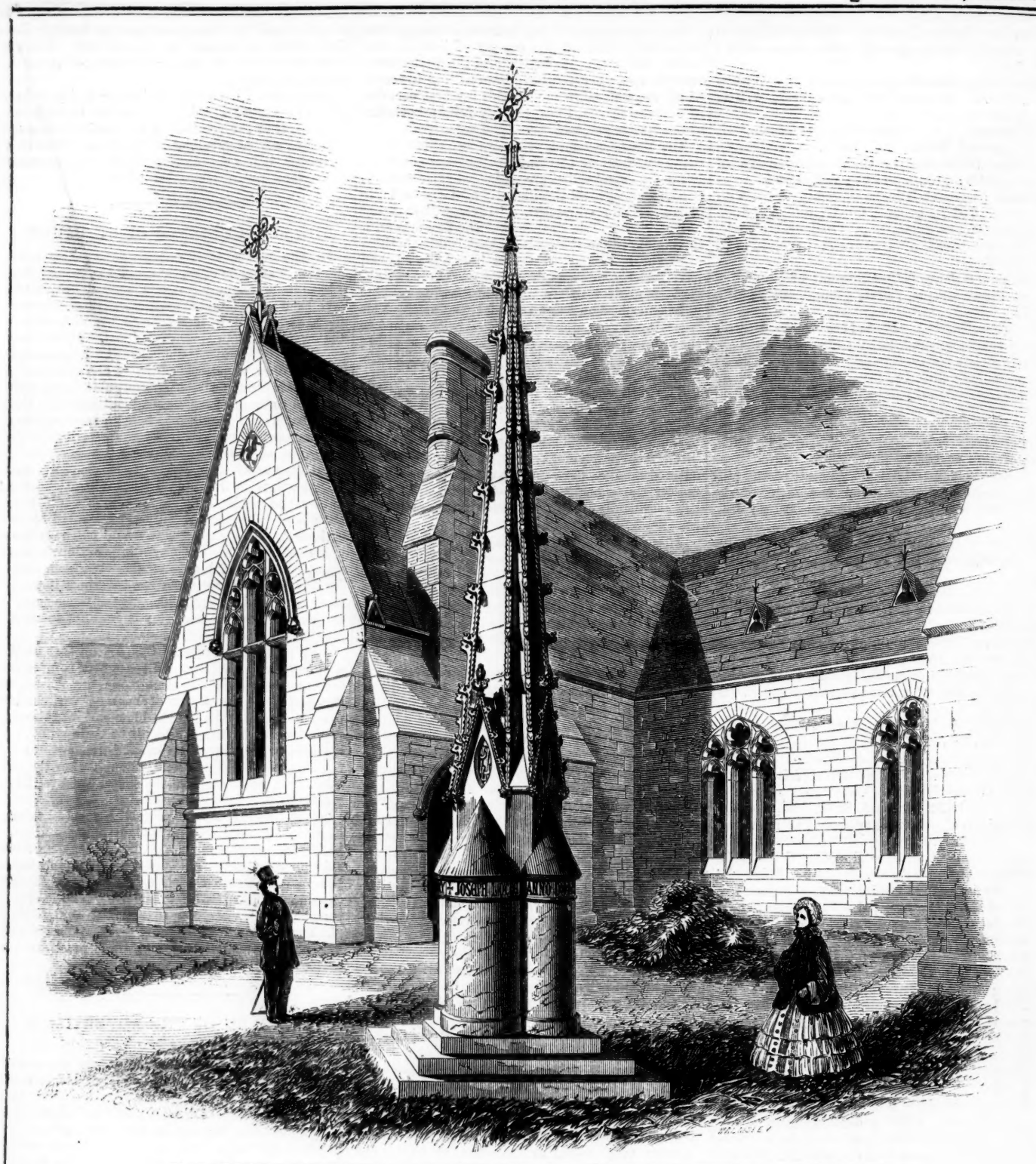
What was not done then might surely be done now; or, if not, St. Paul's Churchyard will probably for ever remain in its present horribly amorphous, though no doubt picturesque shape. No one can charge it with being too formal. If, as some will have it, irregularity be, even in architecture, the source, not to say the soul, of the picturesque, St. Paul's Churchyard, with its zigzags and "evitation of parallelism," must be the perfect quintessence of the picturesque.

W. H. L.

THE GERM OF THE ADVERTISING SYSTEM.

A SHORT time ago, the local papers announced and lamented the death of the venerable bellman of Clerkenwell parish. With him has died this ancient office in that district; and we believe that throughout the metropolis the bells and proclamations of these once important functionaries have now ceased to be heard. Before the days of the modern newspapers, and even for long afterwards, the bellman was almost the only means available of advertising the wants of trade and commerce, and the other miscellaneous matters which form such a large portion of numerous periodicals of the present day. In some ancient or out-of-the-way places, the parish or town bellman still exists; shorn, even in these cases, of much of his former importance; but in a few years the bellman will be no longer heard in England. Considering him as the herald of the extensive system of advertising which has now become such an important element in carrying on the affairs of the country, it may be worth while to record a few recollections of the bellman, who in days gone by was as necessary a part of the corporations and parishes as the mayors and churchwardens. The duties of the bellman were various: he officiated at royal proclamations, in the absence of the trumpeters of the sheriffs; and at elections of knights of the shires or boroughs: he had at times to do with the royal writs at assizes, and with the "crying" of fairs. After several sonorous preliminary tolls of his bell, he was wont thus to proceed:—"Oh, yes!* Oh, yes!! Oh, yes!!! Take notice, that a valuable cargo of corn—or fish, or timber, or other merchandise,—has arrived at ——, and will be sold at ——, by——. God

* A corruption from the old Norman.



THE LOCKE MEMORIAL AT THE ROMAN CATHOLIC SCHOOLS, BARNSLEY.

Mr. M. E. HADFIELD, Architect.

Save the Queen;"—"And Hang the crier," was often added by the assembled *gamins*.

He also announced, with some formality, the sale or need of houses or lands; the loss of men, women, or children: he gave notice that a man would not be answerable for his wife's debts; or offered the sale of a child's caul (not seldom still to be seen in the *Times* and other advertisers) for behoof of those about to encounter the dangers of the deep. The introduction of street placards was a blow to the prosperity of the bellman; who, before then, was the only means of making known the arrival of quack-doctors, mountebanks, and strollers. He also fulminated the orders of the local authorities. In times of pestilence he gave forth, in the streets, lanes, and alleys, instructions of a sanitary nature; and in days of political excitement he gave the necessary warning for attention to the preservation of the peace, and fifty other important matters. Being, however, an officer whose duties did not bring him into personal antagonism with his neighbours, he was generally on good terms with the middle and lower orders; and was also treated with consideration by those above.

In most instances the bellman was distinguished by his portly and imposing presence; sometimes, however, by some peculiarity of appearance, gait, or manner. One worthy, who had lost one arm, and performed his office in a very impressive manner, rode upon a donkey: another had a wooden leg.

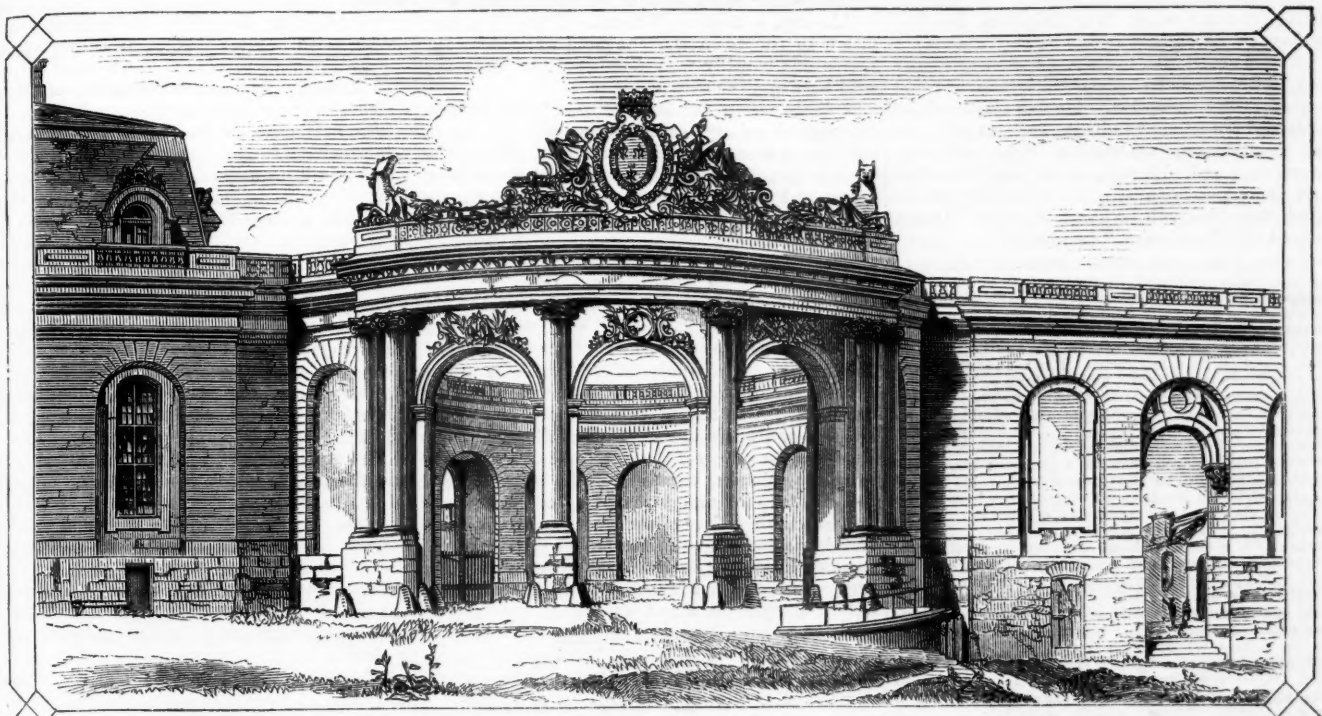
We have known bellmen who have not been able either to read or write; and in these instances it was necessary to make them understand verbally what was to be made public; and this often led to the most ludicrous mistakes. Whether it might happen to be a pig or a cow in the pound, or some other event of great importance, the message of the bellman was seldom received with much reverence by the assemblage who heard him, who were usually composed of a considerable number of small children; and loud was the general cheer and laugh which mostly greeted the "God save the king" or queen at the termination of each cry. In case of fire in some places, the bellman, if he could be wakened in time, sallied forth in the night to alarm the district; and it may be worthy of consideration if a bell something similar to that used by the old walking advertiser might not be attached, with benefit, to the fire-escapes and other means used for the salvation of life in the time of those calamities; for a bell is more startling on the ear than the rattle, or even the battering of truncheons: many a life might be saved by the use of this sonorous alarum.

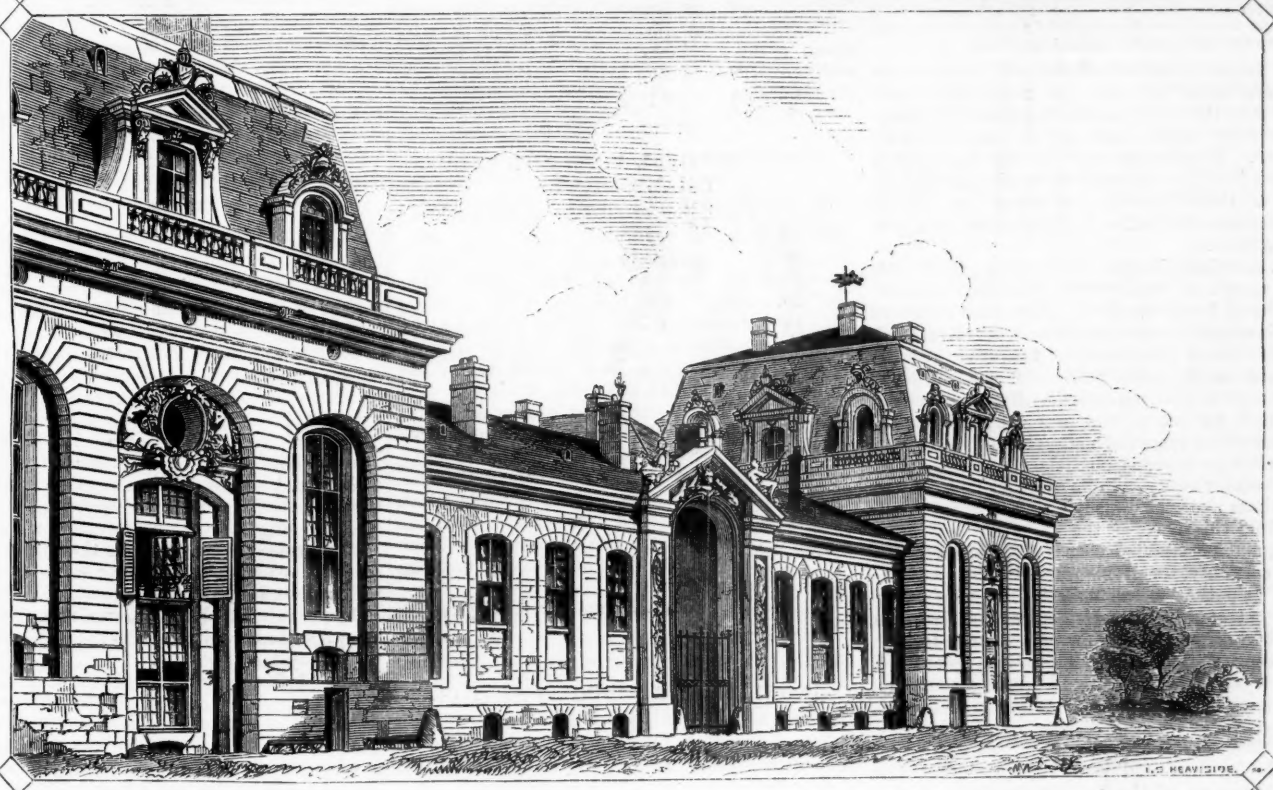
THE LOCKE MEMORIAL, BARNSLEY.

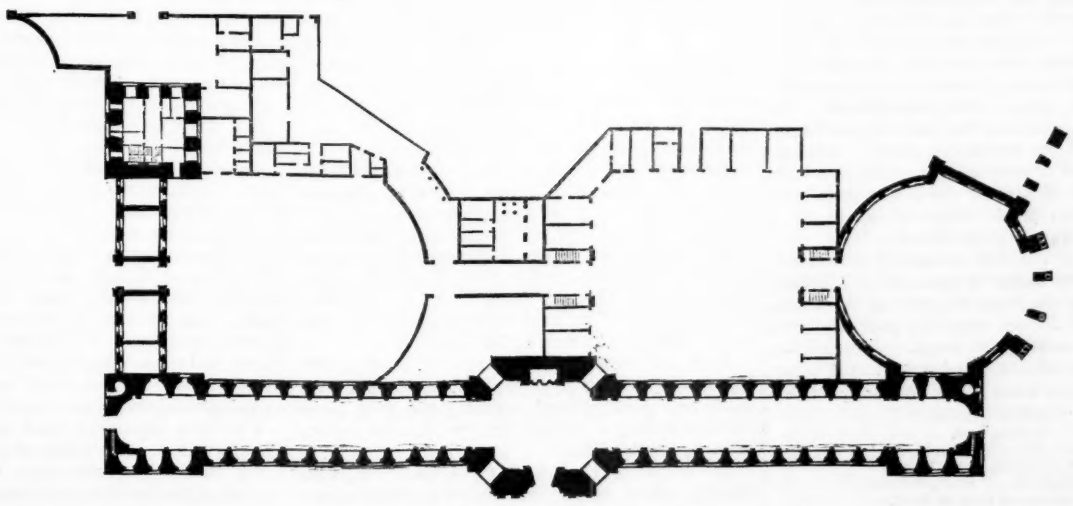
A memorial, of which we give an engraving, has been erected in front of the Roman Catholic Schools at Barnsley, by the Very Rev. Henry Canon Cooke, as a tribute of respect and gratitude to the late Mr. Joseph Locke, M.P., who was a great benefactor to the schools.

The monument was designed by Mr. M. E. Hadfield, who was also the architect of the schools. It is of Huddleston limestone, and 40 feet in height; and is surmounted by a gilt cross. Round the base runs the inscription, in raised letters,—"To Joseph Locke, Esq., M.P., Pres. Inst. Civ. Eng., Officier de la Légion d'Honneur; and to Phœbe, his wife.—Henry Canon Cooke, Rector. MDCCCLXI." The work has been executed by Mr. Thos. France.

THE ROYAL STABLES, CHANTILLY, FRANCE.







1. *Exterior of the Riding School.* 2. *Elevation of End of Stables.* 3. *Plan of the Stables and Riding School.*

STABLE ARCHITECTURE.

IN the volume which Mr. Knightley has just now issued* he rightly insists on the importance of light and ventilation in stables, and asserts truly that a good arrangement of stables, instead of being the rule, is the exception. He has classified the details under various headings, such as site, design, construction, ventilation, light, warmth, fittings, &c.; and, although we may not think him in all these points in advance of opinion on the subject, the book will be found of value. Under the head of "Ventilation," he says,—

"It is now generally admitted that close and confined and badly-ventilated stables produce most of the diseases to which the horse is liable; and as the author's object in writing is a practical one, it is perhaps unnecessary to do more than to show by examples the different modes and contrivances for ventilation, and to call attention to a few facts. When examining the racing stables of a nobleman, and speaking to his trainer of the importance of proper ventilation, and the manner of effecting it, the author was gratified to find his views supported by a very recent experience. Into these stables it appears the owner went one day, and, complaining that they were cold, desired that the ventilators above the horses' heads might be closed, and in this his orders were obeyed, but in less than a fortnight each horse had a cough, or showed some symptom of debility. When, however, the ventilators were again opened for the emission of the vitiated air, all symptoms of debility disappeared,—a circumstance practically illustrating the fact that, if openings are made for the admission of fresh air while none are provided for the passage of foul air, the air becomes charged with impurities, and is the exciting cause of disease. This is more especially the case amongst horses whose work is rapid and not of long duration, and who consequently stand in the stable many hours. If, in a sickly season, irregular attention to clothing, food, and grooming be added, the stud will be very considerably thinned, and the proprietor, after thus paying for experience, will discover that the horse is a breathing animal, and that the chief cause of destruction has been the violation of a natural law."

He recommends the admission of air through the walls *behind* the standings, and Arnott ventilators over the horses' heads, to permit the escape of air from within, but not to admit it from without. Experience seems to show that horses are less liable to take cold from air admitted in front of them than when it comes from behind. He recommends the iron hay-racks and fittings of Messrs. Cottam.

Mr. Knightley has patented a stable floor. This has a margin of brick or stone, to curtail expense; is perfectly level, is made of yellow deal, preserved by a chemical, in two folds (which work on centres), and give access to the receiver beneath; the spars or boards are 3½ inches wide and 2 or 2½ inches in substance, are laid anglewise, with spaces between of 1 inch for the passage of urine; and on the surfaces of the spars are nails, resembling in form and substance a penny-piece deeply cross-hatched. The inventor says,—"From ordinary floors, horses sometimes rise with difficulty, and frequently fall; but from this floor, as the spars are laid at an angle, and are studded with nails, the horse rises with certainty, for if his toes miss the spaces his shoes grip the surface nails." The receiver beneath is trapped: an arrangement not desirable, since certain emanations are sure to arise from it.

We have engraved some illustrations of the Royal Stables at Chantilly, situate about twenty-five miles from Paris, on the Great Northern Railway of France, as a costly mistake, showing what to avoid. Our riding-schools are usually inclosed and roofed in: the lighting and ventilation are effected in the upper parts of the inclosing walls, and every precaution is taken to arrange them so that the horse, when having his lesson, may not have his attention distracted. The opposite of all this applies to Chantilly. The stables, too, although the most royal in Europe, are altogether erroneous in arrangement: for example, a noisy or restless horse would disturb the repose of the whole stable. In the event of an epidemic, one-half the stud may be affected before the fact is discovered. Separation, too, becomes almost an impossibility; and, unless the stable is always fully occupied, the temperature is too much reduced; indeed, as a rule, large stables are a great blunder.

The interior of the hall is vaulted with stone. The height of the dome is upwards of 115 feet. At each corner of the walls supporting the dome, and raised about 6 feet from the pavement, are full-sized stone carvings of stags. Opposite the doors is a fountain 50 feet in height. In the upper part of this fountain is the following inscription:—

"LOUIS HENRI,
de Bourbon,
7me Prince de Condé,
a fait construire cette Ecurie
et les batimens qui en dependent,
commencés en 1719, et finoris
en 1725."

Louis Henri de Bourbon, the founder of this edifice, whose work is thus commemorated, was, in his day, a mighty Nimrod. There is a tradition in the town that he used to light up the woods of Chantilly with flambeaux, to hunt the wild boar and the stag at night.

A little above the level of this fountain is an ornamental gallery, extending around the dome, and giving access to a corridor, which runs at the same height along the whole length of the stables, living and sleeping rooms, which were formerly used as domestic apartments for the Prince of Condé's retainers, communicating with each corridor. Extending from beneath the dome, along the wings of the building, are stalls for one hundred and seventy-two horses, — eighty-six horses being accommodated in each wing,—with space between the stalls sufficient for a straw bed for exercise. The vault of the stalls is semicircular in form, and is not less than fifty feet in height. A portion of this riding-school, which looks towards the old chateau of Chantilly, has an elevation of great elegance. It is supported by Ionic columns, surmounted by a balustrade, and a group of sculpture more than a hundred feet in length. Every detail of the architecture of this remarkable division of what is called *le grande Ecurie* is designed and executed with great skill. Some of Mr. Knightley's own designs, Gothic in style, are very tasteful.

* "Stable Architecture, by Thomas Edward Knightley, F.R.I.B.A., Architect. Cannon-street, London, E.C. Illustrated by Twenty-five Plates, including some Designs for Model Buildings. Baily, Brothers, London."

COMPETITION.

Warehousemen and Clerks' Schools. — In a limited competition amongst architects, the committee of this Institution have awarded the premium of fifty guineas to Mr. James L. Pedley, architect, Southampton-buildings, Chancery-lane, for his design for the proposed new building.

WINDSOR ROYAL FREE AND INDUSTRIAL SCHOOLS.

THE new building erected for these combined institutions was inaugurated on Monday. It is pleasantly situate close to an open piece of ground belonging to the borough, and called "The Bachelor's Acre." The building, which is calculated to accommodate 500 scholars of both sexes, is a plain red-brick structure, with some Elizabethan features. The boys' school is on the ground-floor, and the girls' school above. The boys will be taught gardening and other industrial employments; while the girls are to be fitted for domestic service by being trained in cooking, washing, nursing, &c. The total cost of the site, buildings, and fittings is 4,898*l.*, towards which the Committee of Council have given 1,050*l.*; the National Society, 120*l.*; the Diocesan Education Society, 50*l.*; the remainder being chiefly made up by voluntary subscriptions.

Mr. John Walter, M.P., made a telling and instructive address.

INDEPENDENT SCHOOLS, ASHTON-UNDER-LYNE.

WHAT is said to be the largest block of buildings ever erected in the world exclusively for Sunday-school purposes in connexion with a distinct congregation, was opened on Friday last at Ashton. The main feature of the new building internally is the large school-room, the "great room," the dimensions of which are 100 feet by 50 feet (exclusive of the recesses on each side), and 25 feet high to the tie beams. Including the recesses, the extreme internal dimensions are 116 feet by 70 feet, and the centre portion of the ceiling (which rises into the roof) is 35 feet high.

Each end recess is occupied by a platform 4 feet high; that at the east end for speakers or lecturers, and the opposite platform for an organ of suitable power, which will shortly be placed there.

The north-side recess is separated from the room by a partition, and is divided into two compartments for the use respectively of secretary and librarian. The area thus obtained for the school library is 23 feet by 10 feet.

Each side recess has two sets of coupled iron columns, painted sage green, and ornamented with white and gold foliated capitals; and from these columns spring a central and two smaller arches, with panelled soffits.

For supplying fresh air to the school-room, ventilating valves, opened and closed at pleasure, are provided in the sill of each window; and a centre turret on the roof contains one of Muir's "four points ventilators," for action in summer weather. In addition to these supplies, and for use in warm weather, sixteen casements are provided in the semicircular heads of the windows, opening inwards.

For warming the room, two pedestals in connexion with Messrs. Haden's heating apparatus supply an ample volume of fresh warm air, which will keep up an even temperature of 55 to 60 degrees in the coldest weather.

For extraction of foul air, numerous openings are provided in the flat portions of the ceiling; fitted in with ornamental iron gratings, decorated in blue and gold. These communicate with large flues which lead directly to a fire-stove in the lofty extraction shaft, which our readers have observed as the most prominent external feature of the building. The roof of this shaft is covered with galvanized corrugated iron, so placed as to give protection against weather, and allow of the free escape of vitiated air.

On the ground-floor of the building are ten class-rooms, of varied sizes, the largest being 20 feet by 14 feet, and the smallest 14 feet by 12 feet.

The style adopted by the architects is Italian, and the details are in good keeping throughout. White brick is freely introduced as a relief to the red bricks, of which latter material the walls are constructed; but the contrasting colours are so judiciously arranged that perfect harmony exists throughout. These white bricks have been supplied by Messrs. Hall & Sons, of Dukinfield, and we predict an extensive adoption of this material.

The cost of the whole undertaking will be about 10,000*l.*

The whole of the works have been executed under the superintendence of Messrs. Paull & Ayliffe, architects; and the general contractors are Messrs. J. & J. Longson, of Stockport.

The gas-piping has been laid by Mr. McKay, the plumbing and glazing executed by Mr. Knowlson, the plastering by Mr. Cocker, and the painting and staining by Mr. Bushell, all of Ashton. Mr. James Kitchen was clerk of works.

CANTERBURY, NEW ZEALAND.

THE Provincial Council is prorogued, after a protracted sitting. The estimated expenditure for the financial year ending September 30, 1862, is upwards of 200,000*l.*, of which more than half is devoted to surveys and public works. The staff engaged for these objects is on a liberal scale, which does credit to the Government of this rising province.

The survey department comprises a chief surveyor at 550*l.*, three district surveyors at 350*l.* each, and two assistant surveyors at 300*l.* each, besides a staff of map draughtsmen and a number of surveyors employed on contract work.

The geological survey is in the hands of a professional geologist, assisted by a surveyor attached to this department.

The public buildings are under the control of the provincial architects, who are paid on the percentage system.

The staff engaged on the public works comprises an engineer-in-chief at 800*l.*; three district engineers, at salaries varying from 300*l.* to 450*l.*; three clerks of the works, at from 200*l.* to 280*l.*; a surveyor at 450*l.*; and a staff of clerks and draughtsmen at the head offices in Christchurch.

There is nothing specially worthy of remark in the ordinary public works of the province, which consist of ferries, wooden bridges, and a number of small works of little interest in an engineering point of view, although in the aggregate they present an amount of work which has seldom been accomplished in any new colony during the short period which has elapsed since the settlement of Canterbury.

The three main roads of the province,—viz., that from Christchurch to Lyttelton, a distance of eleven miles; from Christchurch to the Nelson frontier, about sixty miles in length; and from Christchurch to the Otago boundary, a distance of 150 miles,—although in many places mere unmetalled tracks,—are open throughout for cart traffic, and are being improved year by year. Ferries have been established at the principal rivers, and the creeks and small streams are crossed by temporary bridges, which are being replaced by substantial erections as funds permit.

The most important work now in progress is the Lyttelton and Christchurch Railway, six miles in length, connecting Christchurch, the capital of the province, with the harbour of Port Lyttelton.

The principal feature in this undertaking is a tunnel, a mile and three quarters long, under the volcanic hills which surround the harbour. The town of Lyttelton is built on the crater of an

extinct volcano, of which the harbour occupies the centre, the crater wall rising up precipitously behind the town to the height of 1,600 feet. The works are steadily progressing under the present contractors, Messrs. J. Holmes & Co., of Melbourne.

On the Lyttelton side the work is being carried on by shafts, but on the Christchurch side the tunnel approaches have been opened up to the tunnel-mouth, and the waggon-road has been laid up to the inner face of the workings, a distance of about a quarter of a mile.

The total lengths of heading-drivers up to the end of January, 1862, is between 1,600 and 1,700 feet.

The bridge over the hills road at the north end of the tunnel is now in progress, and is worthy of notice as being the first brick bridge built in the settlement.

The amount of Messrs. Holmes's contract is 240,500*l.*, which includes the whole work of the line with the exception of the stations. The line is to be ready for opening by the end of June, 1866.

The work is being carried on under the superintendence of Mr. Edward Dobson, the engineer-in-chief of the Canterbury province, formerly on the staff of Mr. J. K. Rastrick. Mr. George Robert Stephenson is the consulting engineer in England.

The funds for the construction of the railway are to be raised on debentures, an Act having been passed by the General Assembly at Auckland authorizing the raising of a loan of 300,000*l.* for this purpose. The revenue of the province is, however, in so satisfactory a state that the first year's issue of debentures, amounting to 50,000*l.*, has been cancelled, and the amount passed to railway account out of provincial revenue.

The census of the province has recently been taken, but the results are not yet published. It is anticipated that the population will have risen since the taking of the last census to about 17,000, exclusive of the Maories, who do not, however, amount to a large number in the Middle Island.

PROVINCIAL NEWS.

Colchester.—The works in connection with the new cattle market, Middleborough, under the superintendence of Mr. James S. Cooke, C.E., are in progress. The drainage, as far as at present proceeded, is said to be satisfactory.

Worthing.—The new pier has been formally opened. It is constructed of iron.

Manchester.—A lofty building in the Italian style has been erected in King-street, Manchester, for the Liverpool and London Insurance Company; and on Saturday week the directors gave a dinner to the workmen, &c., at Belle Vue Gardens. ——The Meat and Fruit new Market in London-road is a stone building, in the Venetian style, ornamented with the Manchester arms, stone carvings of fruit, &c., and disfigured, says the *Courier*, by enormous letters, announcing who was mayor of this city in the year 1862. The market has a frontage of 90 feet to London-road, where is the principal entrance. There are also two entrances from Birmingham-street, and two from Swarbrick-street, by both of which streets the market is bounded. The lower part of the front portion of the building is divided into shops. The upper story is used for offices. The market itself is behind these shops and offices, and covers a space of 90 feet by 70 feet. It is approached by a porch, over the doorway of which is a pyramidal device, showing the purposes to which the market is to be devoted. At the top there is an ornamental balustrade. The interior of the market consists of three bays, supported by iron pillars, and lighted by skylights. There is accommodation for fifteen butchers' stalls, and various stalls for fruiterers and greengrocers, and dealers in miscellaneous articles. The work has been carried out under the superintendence of the city surveyor. The clerk of the works was Mr. S. Taylor.

Gateshead.—The directors of the Whittle Dene Water Company (says the local *Observer*) have obtained the assent of all the landowners on the line of their new pipe between Newcastle and Newburn. A considerable portion is already laid, the operation having been facilitated by the employment of a travelling crane, attached to semi-circular bars slung across the pipe. The crane lifts the pipe, weighing about 1¼ ton, into its place, to be jointed; and the line of rails being in two divisions, it is made to form its own "permanent way" by lifting each length forward as it is required. The present 24-inch pipe has been in use since 1848. If the town increases as hitherto, the 30-inch pipe now being laid should suffice for a long period of years.

Gourock.—The waterworks reservoir, on the farms of Cove and Auchneagh, is sufficient for storing an ample supply of water for Gourock. The length of the reservoir is about 360 yards, the average breadth 100; and its area comprehends upwards of seven acres. The maximum depth is 20 feet, and its storing capacity 15,750,000 gallons. One-fourth of this quantity of water had to be passed, in terms of agreement, as compensation water to the proprietor; and the remainder, nearly 12,000,000 gallons, is held in reserve for the inhabitants, which is considered a sufficient supply, under ordinary circumstances, for five months without rain. The quality of the water is said to be excellent, containing, according to Dr. Penny's analysis, only seven grains of solid matter in the gallon.

STAINED GLASS.

Lincoln Cathedral.—The Revs. A. and F. Sutton (sons of the late Sir Rd. Sutton, bart.) have placed two additional stained-glass windows, at their own expense, in this cathedral. Some time ago they filled in the first and second windows in the south side of the aisle; the subjects being Moses and Joshua. They have now filled in the third window; taking the subject from Judges. The figures, which are twelve in number, are surmounted by the emblems of justice. The window is filled in with stars, and surrounded by an antique border, copied from one of the patterns in the old window at the east end. The other window filled in is that at the north-east end of the choir. The centre light contains the figures of Parmenas and Nicanor, two of the seven deacons appointed by the Apostles (Acts vi. 5). The Messrs. Sutton contemplate filling in the windows on the north side of the choir with the remainder of the deacons, and with three apostles, to correspond with the figures of the saints in the windows on the opposite side. The Messrs. Sutton have now filled in sixteen of the windows in the cathedral with stained glass.

Ely Cathedral.—A four-light window has been recently filled in the choir south aisle of Ely Cathedral with stained glass of very elaborate design. The incidents, set forth in twelve canopied subjects, are illustrative of the life of St. Peter. At the base of the window runs the following inscription:—"This window is dedicated by Hester, youngest daughter of Bowyer Edward Sparke, formerly Bishop of Ely, to the honour of God, and in memory of her husband, Henry Pratt, lieut-tenant-colonel of the 17th Lancers, who died A.D. 1860." Messrs. Clayton & Bell are the artists.

St. Lawrence's, Evesham.—A large stained-glass window has just been erected in the east end of St. Lawrence's Church, by Mr. E. C. Rudge, Abbey Manor, to the memory of his late father. In the lower portion of the window is represented the Lord's Supper, and in the upper part the Resurrection and the Day of Pentecost. Around these groups is a border of flowers, among which are suitably placed the arms of the see of Worcester and St. Lawrence. When the other window at the east end of the church is completed (which is being done by the executors of the late Mr. W. Barnes), the whole of the east end of the edifice will then have stained-glass windows. The subject of Mr. Barnes's window is the Descent of the Holy Ghost, with the figures of David, St. Stephen, Isaiah, John the Baptist, the Prophet Joel, &c. The cost of Mr. Rudge's window will be upwards of 300*l.*

Bromyard Parish Church.—Another stained-glass window to the memory of a member of the Shelton family has been placed in this church. It is placed in the south aisle, and has been designed and executed by Mr. George Rogers, of Worcester. The window was presented by Mr. W. Jenkins, of Birkdale Park, Southport; and is a two-light Decorated, with quatrefoil head. The subjects represented are Jesus in the house of Martha, and Jesus appearing to Mary in the Garden. Initials and crest are displayed in the design.

CHURCH-BUILDING NEWS.

Otley.—That portion of the new cemetery at Otley set aside for the members of the Established Church has just been consecrated by the Bishop of Ripon. The Burial Board has been formed for the townships of Otley, Lindley, and Newall-with-Clifton. The new cemetery has cost about 3,400*l.*, which has been borrowed from the Government.

Darlington.—A meeting of parishioners for St. Cuthbert's restoration was lately held, at which a number of resolutions were submitted by the executive committee appointed to carry out the restoration of the church. Plans, showing the appearance of the edifice and the arrangement of the pews as designed by Mr. Scott, were laid on the table for inspection. The chief business was to elect a commissioner, to be named in the faculty, for carrying out the work.

Blaydon.—The parish church of Blaydon, which has for about twelve months past been undergoing a process of enlargement, has been re-opened for public worship by the Bishop of Durham. During the time it has been closed the building has been much altered in size and general appearance; and the result has been an increase of the sitting accommodation in some degree commensurate with the growing wants of the parish. The additions, which have been carried out in accordance with designs furnished by Mr. J. E. Watson, of Newcastle, architect, consist of a chancel, a side aisle on the north side of the building, a vestry in the angle formed by the aisle and chancel, and a tower at the west end, which is ultimately intended to be surmounted by a spire rising to the height of 130 feet. In thus remodelling the church the Early Gothic style of architecture, which was the characteristic of the original building, has been adhered to. The roof of the old building has been entirely removed; and in the new edifice the nave aisle and chancel are furnished with high-pitched open-timber roofs. The additional space obtained inside is so considerable as to admit of the number of sittings being doubled. The masonry has been executed by Mr. March, of Blaydon, while the joiner work has been completed by Mr. Southern, of Newcastle,—the contractor by whom it was originally undertaken having failed during the progress of the operations. The whole expense hitherto incurred has been between 1,400*l.* and 1,500*l.*, of which only about 300*l.* remain to be raised. In addition to this, however, 200*l.* will be wanted for the spire.

Bromfield (Cumberland).—The parish church of Bromfield has been re-opened by the Bishop of Carlisle. Instead of having to descend two steps on entering the church, the floor has been raised to the level of the porch. The church has been re-pewed, and is now heated by hot air. Other improvements have been made, one of which is the removal of the gallery, displaying two Roman arches which have hitherto been hidden. Transepts have been opened out. The windows in the north and south transepts are of stained glass, illustrating several incidents in the life of our Saviour. The east window, also of stained glass, has been placed there, at the cost of the parishioners, to the memory of the late Mr. George Dixon. The west window was supplied by Mr. George Reay, of the Gill, to the memory of his wife. Besides these, other alterations and improvements have been made.

Stratforth (Teesdale).—A faculty has been obtained for the demolition of the old church of the Holy Trinity, Stratforth; and a new edifice is to be erected on the same site. The new church will be of much larger dimensions than the old one, and will extend northwards and westwards over the present site. The chancel is to be 25 feet by 20, nave 54 feet by 24, and south porch 8 feet by 8 feet. The tower is 14 feet square and 90 feet high, with angle buttresses, and angle stair-turret to west gallery and belfry. Buttresses divide the nave into three bays, lighted by double lancets, with pier between. Two lancets light the chancel on the south side, and a traceried window of three lights fills up the east gable. The roofs are high-pitched, covered with green Westmoreland slates, and open in the interior to the ridge. The chancel roof is to be boarded and painted with moulded ribs, and all the woodwork exposed to view will be stained and varnished. Open benches of Baltic fir, with kneelings for 200, will be provided in the nave, and twenty in the chancel. Children's seats are to be placed in the tower gallery; the front seat of which, 4 feet wide, extending right across the west end of the church, is to be set apart for the choir. The exterior is to be built of snecked and squared rubble, from the Spital quarries, and the dressings to be of polished stone. Messrs. R. and T. Borrowdale have contracted to do the work for the sum of 1,275*l.*, and to have the church ready for divine service by the 1st day of December next. Although they are the sole contractors, Mr. Hutchinson will execute the carpenter's and joiner's work, and Mr. T. A. Jackson the plumbing and glazing. The design is by Messrs. W. & J. Hay, of Liverpool, and was selected from amongst others sent in competition. The estimate made out by the architects, in the first instance, amounted to 1,450*l.*, less about 200*l.* for old materials.

Cambridge.—The contemplated alterations of

Great St. Mary's, Cambridge, at a cost of 3,000*l.*, include the removal of the "Doctors' Gallery;" the re-arrangement of the sittings in the chancel and body of the church; the proper warming of the church; the removal of the pulpit to the north pier of the chancel arch; the entire removal of the west gallery; the extension of the north and south galleries to the western tower; and other and minor alterations. Plans for these purposes have been prepared by Mr. Scott; and, on the necessary faculty being obtained from the Chancellor of the diocese, the works will be at once commenced.

Rochester and Chatham.—St. Nicholas's Church, which has been undergoing a renovation and improvement for twelve months past, has been re-opened for Divine service. This church has now three stained-glass windows. That over the altar is the gift of the surviving sister of the Rev. J. F. Spong. This window has cost some 300*l.* In the centre is a representation of the raising of the widow's son; at the lower part an inscription telling by whom it was erected and with what object. At the west end of the church, facing this window, is one presented by Alderman Foord; the colours being generally not deep; so that this window admits much light into the church: in various parts are the initials of members of the Foord family. On the north of this window is another, presented by Mr. P. W. Martin, M.P. In it are represented the city, the Wykeham, and the Martin arms. Coloured glass will be introduced also into the upper portion of the windows in the sides of the building. Near the altar, under the pulpit, and in every corner of the building, seats have been contrived, so as to give the largest possible amount of accommodation. All the seats are open, with low divisions,—a number of them free. Part of the floor of the church is paved with old tombstones: the graves and vaults beneath have been hermetically sealed with asphalte over brick vaulting. The seats are raised on a wooden flooring above the stone floor. The church will be lighted at night by gas-branches. Great increase of accommodation has been obtained by forming a gallery around the body of the church. The cost of the alterations and renovation of the church, irrespective of the stained-glass windows, the gifts of individuals, has been some 1,700*l.*,—a sum raised by subscriptions. The recent works have been executed by Mr. Stump; Mr. Gough, of London, having been the architect.

Ashling (*Sussex*). — Mr. Horace Goulty, architect, Brighton, is preparing designs for a (Dissenting) memorial chapel, to be erected at Ashling; and in a note to one clause in his specification it is said that "The stone to be used in the erection of the walls of the chapel will be supplied to the contractor from the ruins of Chichester Cathedral."

Cirencester.—Cirencester Abbey Church is to be restored by Mr. Scott, at an outlay of 10,000*l.*

North Bradley (*Trowbridge*). — The parish church, which has fallen into decay, is to be renovated and restored. A faculty has been obtained, and the work is now in progress. The sum at which the architect, Mr. T. H. Wyatt, estimates the expenditure, is 1,600*l.* During the work, it having been discovered that the old foundations of the building were reared upon vaults, which crumbled beneath the workmen, the difficulty arose as to whether the repair should be proceeded with, and the foundation jobbed up, or a new foundation be laid. The latter course has been decided upon, and the foundation-stone has been laid. The repairs are entrusted to Messrs. J. Davis & Son, of Frome, builders.

Berkeley.—Lord Fitzhardinge has given instructions, in the carrying out of the restorations of Berkeley Church, to have the work restored, as far as possible, to its old state; and it is intended to leave the old work in its present state, merely washing off the whitewash and colouring, cleaning the Early English capitals of the arcades, and painting and gilding them after the ancient manner,—one of them having been found with sufficient of the ancient colouring to give the clue to its restoration. The pavement will be taken up and relaid to its ancient level, and the incised slabs refixed in their present positions. A new carved stone pulpit, with figures and marble shafts, will be placed outside the screen, and there will be a new carved oak reading-desk. The organ and gallery will be removed, and the western windows opened and repaired, the organ being refixed at the north aisle. The whole of the church will be repewed with low oak sittings; his lordship setting the example of giving up his own seat and substituting open seats similar to others in the church. The stonework is to be repaired, the windows re-glazed with quarries, the roughcast beaten off the walls, pointed, and repaired. The chancel is not to be done at present. The roofs are to be repaired and restored. The work of restoration is to be under the superintendence of Messrs. Popes & Bindon, of Bristol. The estimated cost is about 2,000*l.*

Derby.—The new Baptist chapel, Osmaston-road, Derby, has been opened. This edifice, which, with its tower and spire, is built of stone, stands at the corner of one of the intended new streets leading from the Osmaston-road, and forms a conspicuous feature in this approach into Derby. It is built in the style of the fourteenth century, and is from the design of Messrs. Hine & Evans, the architects to the large building of this description lately erected in Victoria-street. The building comprises a nave, north and south aisles, and transepts containing galleries, a chancel for the choir, a baptistery at the west end, and a tower and spire on the north side. The extreme length of the interior is 107 feet, and the width in clear transepts 70 feet. The nave is divided from the aisles and transepts by cast-iron columns supporting the curved trusses of the roof; the timbers of which are stained and varnished, and the intermediate spaces embellished with colour. At the extremity of the nave is a space set apart for the organ and choir by a triple arcade supported by clustered columns of stone and marble; and west of this is the baptistery. This building, which is under a separate roof and is lighted by stained-glass windows, contains an octangular font, or large basin, constructed of Caen stone, marble, and encaustic tiles; raised above the level of the floor; and of sufficient capacity to admit of the baptism of adults by immersion. It is approached by marble steps in front; but is so contrived that the egress shall be on either side direct into the vestries. The chapel is fitted up with benches. The tower, which is on the north side of the edifice, contains in its lower story one of the gallery staircases; and in the upper stage, which is pierced with traceried windows and arcades, a clock chamber. The spire is broached and intersected at the base of the gables over the clock faces. The total height of the tower and spire is 112 feet. The windows throughout the church are traceried and filled with tinted glass in quarries. The carving and the wrought metal work, both exterior and interior, were done, the former by Mr. Thompson, of Lincoln, and the latter by Mr. T. Brawn, of Birmingham. The contractors were Messrs. Thompson & Fryer, who executed the works under the superintendence of Mr. Appleton, clerk of the works.

Bradford and Beswick (*Manchester*).—Christ Church, Bradford and Beswick, has been consecrated. This church is the first of a series which have been undertaken under the auspices of the Diocesan Church Building Society, with a view to evangelize populous and overgrown districts. Sir Oswald Mosley and Mr. Townley Parker gave the site. The endowment was provided some years ago, by Lady Arabella Hoghton. The church has cost about 4,500*l.* It accommodates in all about 1,000 persons, including 200 children in a west gallery. It consists of one broad nave, transepts, chancel (terminated by a semicircular apse), with a tower and spire at the north-west. The entrance, at the time of Divine service, is by north and south doors at the west end, opening into a lobby with double folding-doors, which are so arranged as to exclude draughts. At the close of the services, five doors are opened, to facilitate a speedy exit. The extreme internal length, from east to west, is 114 feet: the width, measured from north to south, is, in the nave, 45 feet, and in the transepts 79 feet. The designs were prepared by Messrs. Hayley & Son. The contract was taken by Mr. J. Grason, of Bradford. The parsonage it is proposed to build immediately, on a plot of ground adjoining the church. The architect who has been entrusted with this work is Mr. J. M. Taylor, of Manchester.

THE PROPOSED COMPETITION FOR COMPLETING THE MIDLAND INSTITUTE.

SIR,—Some of your readers have probably seen with surprise a recent advertisement inviting architects to send in designs to finish the Birmingham and Midland Institute, of which I am the architect.

In the year 1855 a limited competition was entered into for this building by nine architects (one of whom is since dead), the condition being that the selected architect should receive no premium, but should be intrusted with the professional superintendence of the work. My designs were chosen, but, owing to financial difficulties, only one half of the building could be then erected, and this was completed some years since, from my drawings, and under my superintendence.

The town council of Birmingham, being now desirous of erecting a free library, propose to build it in connexion with the Institute, and thus complete the latter building.

At their request, I have furnished them with a complete set of upwards of fifty working and other drawings, specifications, &c.; but on advertising for tenders, it has proved impossible to erect the building for the amount of my first rough estimate, which was based upon the cost of the first half of the works. On this fact being ascertained, I at once offered to forego all claim for remuneration for what I had done, and to prepare new plans to suit the financial exigencies of the case.

The first part of my offer was at once accepted, and the only answer to the latter has been an invitation to other architects to furnish plans to complete the building *according to my elevation*, which invitation is accompanied by a block plan, *copied from one of mine*, which the council happen to possess.

I cannot suppose that such an invitation will be responded to by any one who either respects himself or the profession to which he belongs; but feeling that on public grounds the matter ought not to rest where it is, I have placed it in the hands of my solicitor, and am advised that the proposed competition cannot be legally carried out, and that those who may take part in it will consequently lose their time and labour.

You will see by the inclosed statement the opinion of most of the competitors in the original competition in 1855; and I have been assured by those of the latter whose names are not appended to the statement, that they fully concur in its views.

EDWARD M. BARRY.

March, 1862.

Having furnished designs in the original competition for the Birmingham and Midland Institute, I am of opinion that it would not only be unjust to Mr. Barry to intrust the completion of his design to other hands, but that such a course would be a direct breach of the engagement entered into by the Institute at the time of the competition to intrust the architect of the selected design with the professional superintendence of the building.

Signed by H. BOWMAN,
J. GIBSON,
E. I'ANSON,
J. JAMES,
J. LOCKYER.

POND MAKING.

"A REGULAR SUBSCRIBER" asks for "a wrinkle" in pond making.

If it be intended to excavate the pond, it is possible that the bottom surface, when excavated, may be one impervious to water, or nearly so; or if it be not, perhaps such a stratum of earth may lie at a little distance below that level: if so, he may make the sides retentive by spreading a layer, a few inches thick, of clay-puddle, round the inside of the pond; tying the lower edge of the clay-lining well into the impervious bottom or stratum below, and carrying up the clay-lining to a few inches above the proposed surface-level of the water.

If it be necessary to form a dam for the water, this may be done by an earthwork embankment, in the centre of which a "puddle-trench," or a wall of puddle (6 or 8 inches thick, if the pond be not very large), should be formed; taking care to well tie in the clay-puddle to the impervious stratum of the bottom, if there be such; and to carry up the puddle to a few inches above the waterline, as before named. The embankment should have a slope of not less than 1½ to 1.

If no sound bottom be reached, it will be necessary to spread a layer of puddle all over the bottom, connecting it with the puddle-trench, or with the clay lining of the sides.

A thin spread of shingle, or loose small stones, over the inner surface of the pond, for 2 or 3 feet down the slope, at the waterline, will prevent the ripple of the water from wearing away the clay or the earthwork, which would be liable to receive damage without such precaution.

The tempering of the clay should be carefully done, and all stones, &c., be cast out of it; and, in laying in the clay-lining, or in forming the puddle-wall, great care should be taken to make it homogeneous and without flaws; or leakage will ensue; which, though it may be little at first, will almost certainly increase. It is generally best to *tread* the puddle solid into its proper form and place, either on clay-lining or in the puddle-trench.

HENRY LITTLER.

"CHIMNEYS AND CHIMNEY SWEEPING."

IN your impression of 12th inst. you give much space to this subject; and, as my name is incidentally mentioned, I trust you will give me an opportunity of replying to your correspondent "H.," who asks, "Why are chimneys so constructed as to be for all common purposes inaccessible from the outside and dangerous to get at?"

The most obvious reply is, that intelligent consideration was not exercised when the chimneys were built.

As to my being "sanguine that a flue of the diameter 3×3=9 will answer, because I have found one of 7×7=49 succeed," allow me to say that truth is only discovered by investigation and experiment. The theories of a Stephenson were considered wild and chimerical until he practically demonstrated them.

My object is to reduce the size of chimney-stacks; to insure the thorough ventilation of all rooms having a fireplace; to entirely abolish all chimney-pots, that now more or less disfigure every class of building; and to prevent for the future all annoyance from smoke.

The experiments I have tried, and am trying, lead me to suppose that all these advantages are quite attainable; and the results will be made public as soon as my experiments are complete.

As to the "theory of our great-grandfather Telford," it is no way binding on me. I regard the "theories" of dead men as finger-posts to guide succeeding generations to further discoveries and practical results.

As to the "sweeping of chimneys," all chimneys ought to be so constructed that they may be swept from the basement; or, if in an external wall, from the outside of the building.

I fear further to trespass on your valuable space, or I might expatiate more fully on this subject, which is interesting to every householder, as tending to comfort and health; and to every architect, as preventing the disfigurement of buildings.

The chimneys of your correspondent "H." (if in an external wall) are not so hopeless as he seems to imagine. A couple, or even three, double soot-doors, fixed in the flue by a bricklayer of ordinary intelligence, would give ready access to those parts of the flue of which he now complains; or, should his flues be in an interior wall, if he will write me I will endeavour to suggest another remedy, without again trespassing on your valuable space.

GEORGE JENNINGS.

SEWERAGE OF BUXTON.

SIR,—In your issue of the 5th inst. there appears a statement, *in extenso*, of the public sewerage works executed under the direction of Mr. R. Rawlinson, the publication of which, I presume, is intended to advance the sanitary movement in towns. That object, undoubtedly, is one of great public importance, and the works necessary for its accomplishment ought to be as perfect as circumstances will admit.

The general principles of trapping, ventilating, flushing, &c., applicable to town drainage are, I believe, pretty well established; but, if the public must derive any real benefit from such statements as those put forth (be they official or otherwise), perfection of the works set forth as executed, accuracy of figures, and a correct construction of the contract documents, ought to form items of vouchers for their admission, as they who read such published statements usually take for granted that the works executed at the several enumerated places, are all that can be desired in completeness of engineering detail.

Now, let us test this by one recent case named in the list quoted—that of Buxton; and, if the other towns have been more fortunate, it must be allowed that it stands with them in an unenviable position. The sewerage of this town is executed with cylindrical socket pipes, and the cuttings are in rock and earth. At the head, in Higher Buxton, is a length of 77 yards, with a fall of 1 in 642, and another length of 33 yards with a fall of 0.03 inch, and for which lengths there is no flush but that of the surface water. The fall on each side of Higher Buxton to the two divisions is so great that, upon the steep gradient, no mention need be made; but the low lines in the lower town, especially the main sewer of the town (of 15-inch pipes) are laid in a most erratic manner, and not to regular gradients, the latter for a considerable length in the middle standing 12 inches in water.

In laying down the lines of main sewers in towns, it is, of course, necessary to take cross sections, in order that their levels shall be fixed so as to receive the lateral or private drainage. Now in this case cross sections have not been taken, in consequence of which a great number of cellars cannot be drained; and in Higher Buxton the mains are so near to the surface that cellar drainage is out of the question.

There is a portion of these statements that is worth the attention of sanitary engineers. It is shown how cheaply public sewerage may be obtained in the execution of the works; but we come to an item (in this case, for instance) of 384*l.* 5s. for engineer's superintendence, &c. This charge upon the cost of works, 3,107*l.*, amounts to 12¼ per cent. as a commission—tolerably liberal, I should think, and a temptation sufficient to bring into the field a host of sanitary engineers.

Being cognizant of the facts stated above, and feeling it due both to the public and the profession that published statements of this nature should not pass unnoticed by those who can speak to such facts, I trust you will allow me space for this in your next number.

INVESTIGATOR.

BUILDERS' ACTIONS.

Longmire v. *Hands*.—In this action, tried at the Bail Court, on the 17th instant, Mr. Serjeant Shee and Mr. Hodgson were counsel for the plaintiff, and Mr. Serjeant Parry and Mr. Leigh for the defendant.

The plaintiff was a builder in Marylebone, and the defendant was a gentleman of property, living in the Harrow-road. The action was brought upon a builder's bill for work done by the plaintiff to a house of the defendant in Stamford-street, Blackfriars-road. The defendant had paid 105*l.* 5s. 4d. into court, and the sum now in dispute was only 18*l.* 7s. 10d. During the time the work in question was in progress; there being no hoarding, and there being no front door; some thieves had entered the premises, and had stolen a quantity of lead, which had caused extra expense; and the defendant disputed his liability to pay for the lead and the additional expense which had been incurred in consequence of the theft. The defendant employed an architect, who employed the plaintiff. The architect had directed the plaintiff to put fresh lead on.

The defence was that there was negligence on the part of the plaintiff, who had pulled down the front door, and had not put up any hoarding; so that the lead and everything on the premises were at the mercy of any one who passed. The defendant swore that he had told his architect that he should hold him or the builder liable for any damage; as the architect had told him not to interfere with the builder; nor did he in fact know who the builder was.

The jury returned a verdict for the plaintiff for 18*l.* 7s. 10d.

PATENTS CONNECTED WITH BUILDING.*

CONSERVATORIES, ORCHARD-HOUSES, AND OTHER HORTICULTURAL ERECTIONS. —*J. Cranston*, Birmingham. Dated 24th August, 1861.—This invention applies to horticultural buildings to be constructed of wood and glass, and also to erections for any other purposes in which the same principle of construction is carried out; but, with the use of iron, zinc, copper, tin, lead, or other suitable material in the place of glass; all the buildings being pinned and screwed together, and made to rest upon blocks of wood or butts of trees sunk in the ground; so that they can be erected with great ease, and are portable.

MACHINERY FOR DRESSING SLATES.—*C. E. Amos*, Grove, Southwark, and *J. Francis*, Penrhynn Slate Quarries, near Bangor. Dated 27th July, 1861.—This invention relates to a novel arrangement of machinery whereby roofing slates may be cut, trimmed, or dressed to the different sizes used for building purposes. The machine consists of a rectangular frame, which may, if necessary, be mounted on wheels for the convenience of transporting or removing the machine from one locality to another. This frame is provided with a fixed knife, and also suitable bearings for a lever or "sword arm," which carries a movable knife. The "sword arm" or lever is suspended by a spring or springs; so that, when in a normal position, the movable cutting edge is raised above the lower knife edge, and the two edges resemble a pair of open "shears," and act in the same manner.

MANUFACTURE OF BOXES, CASES, TUBES, RINGS, &c.—*J. R. Black*, Summer-place, Onslow-square, and *H. W. Spratt*, Walbrook-buildings. Dated 6th July, 1861.—This invention consists in an improved mode of constructing and manufacturing boxes, cases, tubes, rings, and other such like articles (some of which have been usually made of pasteboard or thin wood and paper) by moulding and forcibly compressing into the form required pulp made from vegetable or animal fibres, in conjunction with earthy matter, starch, size, gum, oil, glycerine, resin, or other similar stiffening substance. The machinery employed is of the following construction:—The patentees employ a mould or die to receive the pulpy substance. They then employ one or more plungers to mould and forcibly compress it into the form required. The mould or plunger is pierced so as to permit the air and water to pass through it.

VENEERING PRESSES. — *C. Board*, Bristol. Dated 21st September, 1861.—Upon a strong wood or metal frame the patentee lays and secures a sheet or plate of zinc or other metal, on the upper surface of which he fixes metal bars, in such manner that series of chambers or passages, extending from end to end of the plate, are formed. He places strips of wood, or other suitable material, at the ends and sides; and he covers the whole with another sheet of metal, similar to the first, in order to obtain a smooth and hollow bed on which to perform the veneering. Having formed the hollow bed, he places pipes below it in communication with the ends of each of the passages; at one end of which he admits steam, hot air, or hot water, which, travelling along the passage, passes off at the other end. Clamps are fitted to the press, which, for convenience, he hinges at one end of the frame.

IMPROVEMENTS IN TREATING STONE, BRICKS, AND OTHER SURFACES AND IN THE MANUFACTURE OF FILTERS.—*F. M.* and *E. L. Ransome*, Ipswich. Dated 16th September, 1861.—For the purpose of treating stone, bricks, and other surfaces, the patentees employ powdered glass, or other vitrified or hard substance, or powdered flint, or powdered stone, or sand mixed with soluble silicate, with or without colouring matter; the object being so to apply soluble silicate that it may, for the most part, be retained in combination with the pulverised substance on the surface of the stone, bricks, or other substances to which it may be applied; and this is effected by the admixture of the pulverised substances with it. The compound of soluble silicate and pulverised matter or matters having been applied to the surface of the stone, bricks, or other material, the soluble silicate is then rendered insoluble in like manner to that practised when impregnating stone or other substances with soluble silicate; but by this mode of treatment the pulverised matters will be combined with the silicate (which is rendered insoluble), on the surface of the stone, bricks, or other substances. When making parts of filters of pulverised stone, sand, or other materials, cemented by soluble silicate; and also, when using other porous stone or material; the patentees form such porous matters into hollow triangular forms or tubes, by which they are enabled to obtain more extended filtering substances within a given space than can be obtained by other constructions of filters; and such triangular tubes may be combined at pleasure, according to various arrangements.

FITTINGS AND METHOD OF HANGING WINDOW-SASHES.—*J. Gurman*, Southampton. Dated 18th September, 1861.—This invention relates, first, to the fitting and hanging of window-sashes in such manner that they can be readily removed from the frames for cleaning and other purposes without the necessity of disturbing the beads. To effect this the patentee forms what he terms a pocket in one side of the window-frame, similar to that which is sometimes made to get at the counter-balance weights. He makes such pocket somewhat longer than one of the sashes; and fits it with pieces jointed together in the length; the upper end having a spring catch, and the lower one fitting into a step or socket, or *vice versâ*; by which means such pieces may be released and slid out and into position; the sash at the time being in a suitable position. In this pocket-piece he also comprises part of the bead that separates the sashes; so that when the pocket-piece is removed, a part of the bead of some length also comes out. The pocket-piece having been removed, the inside sash is slid into the position embraced by the pocket, and may there be moved laterally to an extent of, say ¾ of an inch, which is sufficient to clear the bead on the opposite side, and the sash so removed from the frame. In order to attach the cords readily he secures a metal-piece to the end of the cord, which piece has a globular enlargement at the end: this is received in a socket fixed to the sash, from which it may be readily detached in the manner of a door-chain. In the piece attached to the cord he forms a hole or socket to receive the end of the cord, which he secures thereto by one or more bending screws. The outside sash may also be slid to position opposite the pocket, into which it may be moved laterally; being first moved inwards a little on the pocket side, for which it is free; the mid or parting bead being removed at that point, as before-mentioned. The attachments of the cords are as before described; and in this way both sashes are readily capable of removal. The next part of these improvements relates to the fittings of sashes which balance each other. For this purpose he uses cords with suitable metal attachments, such as before described; and at the one end he applies a regulating screw, which can be turned at pleasure to regulate the length of the cord, to allow for expansion and contraction thereof, and insure the simultaneous closing of the upper and lower sashes. The pulleys over which the cords pass to connect the two sashes are situate in the mid bead, or bead disposed between the two sashes. He forms the bracket or piece in which such pulley is mounted with a frame or part to form the continuation of such bead, and so give the whole a perfect appearance, and insure the necessary strength.

IMPROVEMENTS IN THE MANUFACTURE OF STONES, BRICKS, TILES, SLABS, STATUARY, AND SUCH LIKE MATERIALS, AND IN THE METHOD OF AND MEANS FOR CLEANSING AND INDURATING THE SAME.—*J. C. Combe* and *J. Wright*, Bridge-street, Blackfriars, London. Dated 19th September, 1861.—The patentees propose to make use of a solution of silicate of potash, weak or strong, as required by circumstances; and then to add to this solution a sufficient quantity of hydro-fluo-silicic acid, weak or strong as required; but preponderating in its equivalent, so as to leave the mixture decidedly acid.

ROOF AND OTHER LIGHTS.—*R. Smith*, Hornsey; *B. Brookes*, King's-cross; and *J. Smith*, Tottenham. Dated 13th September, 1861.—The patentees form the bars and other parts where they support the glass with longitudinal recesses or gutters, over which the edges of the glass are laid; and the glass is then retained by putty in the usual way, or by other suitable holding means. When from any cause the putty or other holding means admits water through it, such water, after passing under the edges of the glass, in place of

* Selected from the *Engineer*, and other sources.

dropping at once therefrom, will be received into the longitudinal recesses or gutters, and by them may be conducted to suitable channels or receivers.

Books Received.

Transactions of the National Association for the Promotion of Social Science, 1861. Edited by GEORGE W. HASTINGS, LL.B., General Secretary of the Association. London: Parker & Son. 1862.

THE Dublin meeting of the Sanitary Association, presided over by Lord Brougham, was an interesting and successful one, of which we duly gave particulars at the time. The voluminous proceedings at that meeting have now been embodied in this goodly octavo, consisting of upwards of 800 pages, with a useful index. It contains the opening addresses, by Lord Brougham; the Right Hon. Joseph Napier (on Jurisprudence and Law); Sir John Shaw Lefevre (on Education); the Right Hon. Thomas O'Hagan, Attorney General of Ireland (on Punishment and Reformation); Lord Talbot de Malahide (on Public Health); Hon. Judge Longfield (on Social Economy); and Mr. Michel Chevalier (on Trade and International Law); together with a host of select papers, notices of papers, &c., on all the subjects already named, and an Introduction to the whole by the editor.

A paper by Mr. Nugent Robinson, City Hall, Dublin, on "The Condition of the Dwellings of the Poor in Dublin, with a Glance at the Model Lodging Houses," gives a fearful idea of the state of things in some parts of Dublin. In perusing what is said of these, one feels as if, by mistake, an account were being given of the vilest and most wretched districts in Constantinople, or of some still worse city of semi-civilized China. As regards the streets, however, much is done to promote cleanliness; but the state of the dwellings in the poorer districts of Dublin is dreadful, and, as Mr. Robinson remarks, "a disgrace to modern civilization."

"The visitor whom necessity or philanthropy may drive into the lanes and alleys with which our city is intersected, can alone form an idea of the sties in which the poor are compelled to drag on their existence. These places are like so many hotbeds, from whence all diseases are transplanted into our hospitals. The number of tenements—that is, of houses let out in rooms within the municipal boundary—is close upon 8,000, or better than one-third of the total number of houses in the entire city. As the large majority of these are overcrowded, we may safely venture upon the average of eight persons to each house, which gives us 64,000 people out of a population of 249,733,—50,000 at least of whom reside in a fetid and poisonous atmosphere. The dwellings of the poor are chiefly confined to about 450 lanes, courts, and alleys, and about sixty streets. The worst districts are the Liberties on the south, and the parish of St. Michan on the north side of the city. The major portion of these tenements are situate in the Liberties. The entrance to most of these courts is very narrow—a sort of great stench valve, or overground sewer. As a general rule, there is a green slimy stream oozing from a surcharged and choked-up cesspool, through which the visitor is compelled to wade. The stench from this ooze is intolerable. In a tottering house, in an alley like this, the deformed offspring of a narrow street, the working man is forced to dwell. Finding that to enumerate the lanes and alleys, and the statistics connected therewith, in so small a space as is allowed to this paper, is utterly impossible, I have taken 134 of the worst streets and alleys; and having condensed the figures connected with them into totals; the following are the results, as near as I could gauge them. In these 134 streets there are 2,102 houses occupied by room-keepers, 11,214 rooms, 14,850 beds, including wads of straw, and 40,319 persons, giving the following averages:—

Average number of persons to each street ..	300·888
Average number of persons to each house ..	19·181
Average number of persons to each room ..	3·595
Average number of persons to each bed	2·715

There is a class of people in Dublin called "house jobbers," to whom the wretchedness of the dwellings of the poor is mainly owing. As for amendment, in many cases nothing but the demolition of whole streets will be of any avail. An extensive fire, could the poor people only have sufficient warning, would be a merciful dispensation; and, indeed, in these "sties," as the author of the paper calls them, fever must destroy hundreds for every one that would be likely to suffer from any smart and destructive conflagration.

"In a return made by the sanitary inspector of the principal fever sites in the city in the year 1855, the streets he selected as being the lurking-places of fever are almost identical with those chosen by me as being the most filthy as well as the most crowded. It was not until after I had completed my researches that this document fell into my hands. Some of these houses are in a most ruinous condition: an eminent architect tells me he 'would not guarantee their safety while he wound his watch.'.... The people inhabiting these localities look as though stricken by the plague. In the majority of the rooms there are no beds; nothing but wads of straw. Sixpence a week is the rent paid for a miserable apartment: the ceilings are low, and the place is literally filled with hot air. In traversing these districts the stench that assails the nostrils is of the most sickening character. The reason of the existence of this bad odour arises partly from the total want of dustholes, &c. The houses are built in blocks, leaving no space whatever for yards or necessaries, whereby the landlords do not come under the Removal of Nuisance and Diseases' Prevention Act. The police interfere whenever they can do so, to compel dustholes and necessaries to be erected; but they have no power to issue an order to remove nuisances till a complaint has been formally lodged against the house, signed by two of the inhabitants. In many cases the people are afraid to complain, for by so doing they bring down upon themselves the wrath of the landlord, so the grievance remains unredressed, and the work of corruption goes on."

The Transactions of the Social Science Association, of which this is the fifth volume, form a very valuable record of social short-comings and defects as well as of social progress.

VARIORUM.

MRS. S. C. HALL'S novel, "Can Wrong be Right?" (two vols., Hurst & Blackett), originally published in the *St. James's Magazine*, is even more effective, read as a whole, than month by month. Indeed, we are mistaken if it do not come to be considered, as a work of art, the most complete of Mrs. Hall's many excellent books. The plot, a novel one, is effectively worked out; and, while it greatly interests and amuses, is made to teach. It deserves to have, and will have, numerous readers. Mrs. Hall dedicates the book in these striking words:—"I inscribe these volumes to the guide, the counsellor, the unchanging affectionate friend, the devoted husband, who for five-and-thirty years has laboured for me, and with me: to whose care and judgment I owe whatever success I have achieved, and from whose example I have learned to value the dignity and happiness of work." Mr. Hall may justly be proud of the testimony.——In "St. Thomas's Hospital: a Statement of the principal Considerations involved in its change of Site," Mr. Whitfield, the resident medical officer, brings together all his arguments and facts in support of the proposal to remove the hospital to Lewisham or some other suburban position, as urged by ourselves. In reply to some of the statements that have been made as to the probability that physicians and surgeons of high eminence would not attend if the hospital were removed to a healthy suburban site, he prints a letter dated 27th June, 1832, signed by the medical and surgical officers of that period, setting forth the present bad position and construction of the hospital, and urging the rebuilding of it in a more salubrious situation. If it be removed a little way out of town, as we sincerely hope will be the case, the treasurer's suggestion to build a collegiate establishment in connection with the hospital might be carried out advantageously. Those who insist on keeping the hospital on a site "detestable as a residence" have not an argument left.——The current *Quarterly* has, amongst other articles, a capital paper on "Dorset;" a very damaging smash-up of Mr. Thornbury's "Life of Turner;" and some not very conclusive observations on "The Merrimac and Monitor."——No. 6 of *The Illuminators' Magazine* (Barnard & Son, Oxford-street) contains a coloured plate showing the decorations of the nave of the Exhibition building. The effect conveyed, however, is not that of the building, where the columns and the roof scarcely seem to belong to each other.

Miscellanea.

MR. FRITH'S "RAILWAY STATION."—The reputed large price agreed to be paid for this work before a line was drawn (8,750*l.*, including the right to exhibit and engrave, and a reduced copy for the latter purpose) led to so much talk about it that the chances were the public would be disappointed with the result. We have no hesitation, however, in saying that this will not be the case. It is one of the finest works of its class ever produced;—full of story, full of truth, and full of beauty. Notwithstanding the large number of figures engaged, and the episodical nature of the incidents (a struggling Frenchman in the hands of a cabman, a wedding party, sailors, soldiers, fussy women, boys for school, the arrest of a forger, and a dozen other points), they group admirably, and form a whole of a remarkable character. In respect of manipulative skill, too, its merits are very striking: notice the shawl of the mother who is stooping in the foreground to kiss her departing child; and the dress of the porters. Mr. Frith has done honour to himself and the British School, and deserves the hearty congratulations of his contemporaries.

MARBLE ELEPHANTS FOR THE QUEEN.—The marble elephants, which stood in the Kaiser Bagh at Lucknow, and which were removed from there a short time back, are *en route* for England, as an offering to "the Empress of India."

WESTMINSTER BRIDGE.—The removal of the massive scaffold and travelling-cranes used in the construction of the lower half of the new Westminster Bridge commenced on Tuesday in last week; the whole of the arches being turned and the entire structure completed. The bridge is to be opened to the public during the ensuing month of May.

GAS.—The price of gas supplied by the Isle of Thanet Gas Company is to be reduced from 5s. to 4s. 6d. per 1,000 feet.——The erection of the Pangbourne gasworks has been commenced near the Great Western Railway station of that village, and the pipes are to be extended to Whitchurch. Mr. Briant, of Whitchurch, has taken the contract for the buildings, under the superintendence of Mr. Bower, the engineer, who is one of the principal shareholders, and who will chiefly manage the works after erection.——The Durham Gas Company have announced a reduction in the price of gas to private consumers of 3d. per 1,000 feet. On the following scale of consumption the prices annexed will henceforward be charged:—Under 150,000 feet, 3s. 9d.; above 150,000, and under 300,000, 3s. 6d.; 300,000 and under 600,000, 3s. 3d.; and 600,000, 3s.

LIVERPOOL ARCHITECTURAL SOCIETY.—The fourteenth meeting of the session, on Wednesday evening before last, at the Royal Institution, was presided over by Mr. Goodall. After some routine business had been transacted, Mr. Heffer drew attention to the death of Mr. Thomas, the sculptor; which gave rise to some remarks favourable to Mr. Thomas, as an artist and a good man; and ended in a request that Mr. Heffer, who is an old pupil of Mr. Thomas, will draw up a memoir of him to be read at next meeting, which Mr. Heffer promised to do. The paper of the evening was by Mr. Frank Horner, "On some of the Relations existing between Modern Literature and Art." The paper was favourably received; and, after a discussion in which Mr. Picton and other members joined, thanks were voted to Mr. F. Horner.

WINDSOR CASTLE: THE NEW GUARD-ROOM.—A new building is in course of construction in the Early English style, extending from the Salisbury Tower, near Henry VIII.'s Gateway, along the western side of the lower foundation to the Old Garter Tower. It will comprise every necessary accommodation for officers and men. The building contains a guard-room, 74 feet by 20 feet, in the clear: at one end there is also an open corridor, 28 feet by 20 feet; and at the opposite end officers' apartments are to be built in the Old Garter Tower, beneath which is to be a kitchen, connected by an underground passage with the guard-room. The wall fronting the Castle-yard is 4 feet in thickness, and that fronting Thames-street 5 feet, composed of heath-stone, with Bath-stone dressings. The roof is covered with asphalte, which forms a terrace walk, approached by a flight of stone steps from the Castle-yard. The length of the building from the Salisbury Tower to the Garter Tower is 124 feet. All the apartments are vaulted, and lighted by windows looking into the Castle-yard and Thames-street. Mr. George Smith, of Pimlico, is the builder; Mr. Anthony Salvin, the architect; and Mr. Jackson, clerk of the works.

A GOLDEN BRONZE FOR STATUES, &C.—The Paris correspondent of the *Birmingham Journal* describes a novelty in manufacture which, he states, has been accepted with great interest by the metallurgists of the Government. The discovery appears to have been purely accidental, and to have originated in what was at first regarded as a disastrous mistake, made by one of the workmen in the employment of Mr. Hullin, of the bronze powder factory at Chatelherault. The spilling of some chemical matter (which of course remains a secret) into copper and iron filings has produced two new metals or alloys, possessing every quality of gold and silver excepting weight. Both are inoxidable, and as rich and bright in colour as the real metals, of which they are rather to be deemed the humble rivals than the mere imitators. The price is fixed at fifteen francs the kilogramme; and its cheapness has induced the experiment to be made public by the execution of a statue of Saint Anne, for the hermitage of Auray, in Brittany. The statue is intended to be of colossal proportions, and to adorn the roof of the grotto. A tea service of the metal, it is added, has been sent to London for the Exhibition. Ancient bronzes were ordinarily gilt.

THE ONE-SHAFT SYSTEM IN MINES.—Another illustration of the danger attendant on the one-shaft system in mines has just occurred at West Hetton Colliery, Durham, which is subject to this defective arrangement. The workings were last week blocked up by the falling of a quantity of timber from the shaft, occasioned by a cage slipping out of the "slides." At the time, 230 men and boys were at work underground, and several hours elapsed before they were released from their perilous situation.

ARCHITECTURAL SOCIETY OF THE ARCHDEACONRY OF NORTHAMPTON.—At a committee meeting held April 7th, Lord A. Compton in the chair, the secretary stated that the Leicestershire Society, in connection with that of Lincoln, were about to meet at King's Bosworth battle-field during the autumn; and that the Archæological Association would probably select Leicester as their place of meeting for this year. The anastatic proofs of cottage designs to appear in the forthcoming volume were exhibited and approved. The committee adjourned to visit St. Sepulchre's Church, which is now externally complete, and only awaiting sufficient funds to carry out the paving and seating before the new part can be opened. Madame Lind-Goldschmidt's generous offer to sing at the concert on Easter Wednesday, on behalf of the Restoration Fund, was very cordially acknowledged.

IRON AND CONCRETE PAVEMENT IN THE CITY.—The roadway of the Poultry, commencing at the corner of Charlotte-row, Mansion House, and extending about 100 yards westward from that point, is being laid with Knapp's patent pavement, which consists of hollow iron blocks, divided into small compartments, the latter being filled up with concrete level with the surface. Four of these blocks will make a square yard. On each side of the road, close to the edge of the footway, are being laid hollow cast-iron tram-plates, 6 feet in length and 18 inches broad, which are first filled with concrete, and then turned over, leaving the indented iron face upwards, thus forming solid tramways. To keep the paving level at each end, iron girders, 18 feet 9 inches in length, will cross the roadway. The blocks lock into each other, and form a solid mass of iron and concrete. One great question, of course, will be its slippiness, or otherwise, in frosty weather.

HOUSE PROPERTY.—At the Mart, by Messrs. Foster.—Leasehold dwelling-house, No. 19, Priory-street, Camden Town, estimated value 30*l.* per annum, term unexpired sixty-two years, ground-rent, 7*l.*: sold for 200*l.*—Leasehold residence, No. 16, William-street, Knightsbridge, let at 150*l.* per annum, term eighty years from 1836, ground-rent, 30*l.*: 1,790*l.*—Leasehold residence, No. 91, Eaton-place, Belgrave-square, let at 150*l.* per annum, term seventy-nine years from 1840, ground-rent, 24*l.* 10s.: 1,810*l.*—Leasehold residence, No. 12, Eccleston-square, Pimlico, let at 150*l.* per annum, term seventy-seven years from 1849, ground-rent, 20*l.*: 1,790*l.*—Leasehold residence, No. 73, Eccleston-square, let at 170*l.*, term eighty-four years from 1842, ground-rent, 2*l.*: 2,610*l.*—Leasehold residence, No. 1, King-street, St. James's, let at 240*l.* per annum, term ninety-nine years from 1845, ground-rent, 65*l.*: 2,430*l.*—Leasehold residence, No. 1, Warwick-square, Pimlico, let at 140*l.*, term unexpired seventy-two years, ground-rent, 5*l.*: 1,630*l.*—Leasehold dwelling-house, No. 1, Gloucester-street, Belgrave-road, Pimlico, let at 65*l.* per annum, term unexpired sixty-seven years, ground-rent, 10*l.*: 685*l.*

BATH THEATRE BURNT.—The theatre at Bath has been totally destroyed by fire. It was built in 1805 at a cost of about 25,000*l.* The present lessee is Mr. Chute, who is also lessee of the Bristol Theatre. The building was insured in the West of England and Norwich Union offices for about 6,000*l.* The origin of the fire is uncertain; although it is stated that a flue, built against the theatre wall, and used for a furnace fire of the theatre tavern adjoining, originated the mischief. The funds for the erection of the Bath Theatre were raised by a tontine, which has not yet expired, the principal holder at present being Mr. E. King. The house was built from a design by the late Mr. G. Dance, R.A. There were three entrances, in as many different directions. The grand front in Beaufort-square was about 125 feet in length, and 70 feet high. The exterior buildings contained dressing-rooms, scene-rooms, wardrobes, &c., the anterooms and saloons to the boxes, rooms of accommodation to the private boxes, which were twenty-six in number, inclosed with gilt lattices, &c. The pillars of cast iron were placed at a distance of 2 feet from the front, by which the first row of each circle appeared as a balcony independent of the main structure.

NATIONAL ASSOCIATION FOR THE PROMOTION OF SOCIAL SCIENCE.—The Corporation of the City of London have granted the use of Guildhall, with the courts and offices adjoining, for the purposes of the sixth annual meeting of the National Association for the Promotion of Social Science, to be held in London from the 5th to the 14th of June next. A strong feeling is exhibited in the City in support of the meeting; and the Fishmongers' Company have given fifty guineas to the fund that is being raised to defray the local expenses.

DISCOVERY AT WORCESTER.—The men engaged in digging the foundations for the new City police-station, in Copenhagen-street, Worcester, have come upon some interesting remains. About 8 or 9 feet from the frontage of the present street, and 7 feet below the surface, they have discovered the remains of an ancient roadway, and the bases of two columns, standing about 7½ feet from each other. The bases are of sandstone, and have been broken off from the columns which they supported. They are of Roman type; but from the rudeness of their form they can hardly have been the work of Roman hands: they are, therefore, supposed to be of a date a little subsequent to the Roman period.

BAINES'S GIRDERS AND FRAMES.—In the forms or sections of plates used in the construction of these frames or compound girders, the invention of William Baines, of Smethwick, one part of each is male and another part female: by bringing these parts together they become inserted; and, being secured by bolts or rivets, effect a vertical union and continuous bearing; branching or extending where required. In constructing the movable parts of railway turntables, the plates are bent and formed into suitable parts or segments, and secured in their respective places by bolts or rivets; thus constituting one entire frame forming its necessary cross girders, which can be produced to suit any angle for any number of roads upon the table.

THE IPSWICH SURVEYORSHIP.—The surveyor to the corporation and the local Board of Health, Mr. Taylor, having resigned his offices, the paving and lighing committee recommended the separation of these offices, and the appointment of a separate surveyor to the Board of Health and inspector of nuisances, with a salary of 200*l.* a year; and reported that they were ready to submit the names of three persons to the Board, all qualified and willing to undertake the office. On the motion that the report of the committee be adopted by the Board, a good deal of discussion ensued; during which it was proposed to advertise for a surveyor; when a member of the Board said it should be announced, in such an advertisement, that "none but Mr. William —— need apply," as he knew the matter was already decided. Ultimately it was resolved that the offices be divided; that the salary of the Board's surveyor and inspector be 200*l.* a year; and "that advertisements be inserted in the local papers, *Times*, and *Builder*, inviting applications for the offices; and that the applications and testimonials be laid before the paving and lighting committee and the estate committee jointly, and to report thereon to an early meeting of the council."

ARSENICAL PAPER-HANGINGS.—Mr. John Humphreys, the coroner for the county of Middlesex, received information on Tuesday from the parish of St. Ann, Limehouse, of the deaths of four children, from the effects of arsenic, under extraordinary circumstances. It appears that the four children resided with their parents at Tomlin's-terrace, Salmon's-lane, Commercial-road, Limehouse; and the father (Richard Turner), who is a journeyman bricklayer, occupied a small tenement, with his wife and four children, at the place above named. The house was well drained, and the family were in perfect health until about six weeks since, when one of the younger children was found to be unwell. Dr. Orton, who is one of the most experienced officers in the east end of London, repaired to the place, and found the house in capital condition, well drained and ventilated. He could not find any local cause for the deaths of the four children in a sanitary view; but he subsequently went to the room where they had slept, and there he found that the walls of the apartment had been papered with a green-coloured paper. He examined the walls and found that large pieces of the paper had been torn off by the children while in bed. They had played with portions and licked the green colour off the surface. He had tested the substance, which was easily removed by the slightest moisture, and discovered by experiments that the paper contained immense quantities of arsenic, which, he believed, had been the cause of the four children's deaths.

A UNIVERSAL SQUARE.—Among inventions recently submitted to the Franklin Institute at Philadelphia is a patent universal square, which combines the try-square, the mitre, the T-square, the centre-square for finding the centre of a circle, and the graduated rule.

ALDERSHOTT.—The present temporary building used as a theatre for amateur performances by the military being unfit for that purpose, a plan is under the consideration of the authorities for constructing a building capable of holding 1,000 persons. A design has been prepared by the army schoolmaster, Mr. H. A. Binckes, in accordance with which the theatre will be 120 feet long by 30 feet wide, with dressing and refreshment rooms, &c., and detached residence for the manager.

DARLINGTON SCHOOL OF ART.—The annual *conversazione* of the friends of the Government School of Art in Darlington has been held in the Mechanics' Hall there. The room was decorated with evergreens and pictures drawn by students. The attendance was considerable. A report for the past year was read. Its aspect was of a satisfactory character; there being funds in hand to commence the work of another year, and the number of pupils in connection with the school increasing daily. The prizes were awarded at the meeting.

THE NOTTINGHAM SCHOOL OF ART.—The medallions, medals, and prizes, form a test of the relative success of the different schools as regards the proficiency of the students. The maximum number of medallions awarded to any school is five, and of medals thirty. The Nottingham school obtained four national medallions at the last competition, and twenty-eight medals at the examination just concluded. This number entitles the school to the privilege of selecting works of art to the value of 54*l.* towards the formation of a permanent museum.

NEW CHURCH AT KING'S-CROSS.—A gentleman, whose name has not publicly transpired, has given a site for a new church, and an endowment of 200*l.* per annum, for a church for the district of St. Michael, adjoining King's-cross. About 1,000*l.* more have been subscribed by the friends of the founder, and 600*l.* have been promised by the London Diocesan Church Building Society. About 1,400*l.* more will be required to complete the work. The Rev. John Lowder Lees, of St. Bees' College, Cumberland, late curate of the working men's wooden church, Luton, will be the incumbent of the new church and district.

THE DURHAM SCHOOL OF ART.—The ninth annual report of this school has been printed. It states that the balance sheet of this year will show that the school is now in a much better position, financially, than it was when the last report was issued. The expenditure has been brought into a condition that will enable the funds to meet it, providing the annual subscriptions do not fall off. The committee observe that there is a great want of casts to illustrate the different periods of Gothic art; as also of architectural patterns for those who are pursuing that branch of drawing. The present state and progress of the drawing department is shown in the following statement of the drawing-master:—Morning class:—Number of students who have attended the class for any time, 19; average attendance, 10. Afternoon class — Number of students who have attended the class for any time, 32; average attendance, 20. Evening class —Number of students, 61; average attendance, 35. St. Margaret's school has been added to those which already receive instruction in drawing. The number of children under instruction is about 400.

DEMOLITION OF "KING JOHN'S PALACE" AT NOTTINGHAM.—That quaint "nook and corner of old Nottingham," known as "King John's Palace" (says the local *Guardian*), is a thing of the past. Some doubt has been expressed whether it ever formed part of a royal house. In favour of the hypothesis is the well-known tradition, which has come down from father to son; and it is borne out by one or two facts, not the least important of which was the existence of an old carved mantel-piece in the large room, on which the royal arms were quartered. This was sold some time ago. The public-house in Bridlesmith Gate, "King John's Palace," and the old gabled structure, in the same style of architebture, in Peter Gate, are said to have formed portions of the palace; which, in that case, originally covered a large extent of ground. Some fine old oak panelling and curiously carved oak skirting have been preserved; including the grotesque figures which attracted the attention of the curious as they examined the archway leading to the old court-yard. These carvings will, probably, be placed in the museum attached to the Mechanics' Institution.

DISCOVERY OF AN ANCIENT THEATRE AT ATHENS.—A letter from Athens announces that the researches which Mr. Starck, an English architect, and member of the archæological commission sent to Greece, has caused to be made at his own expense, have brought to light the ancient theatre of Bacchus, upon the southern slope of the Acropolis.

GREAT FIRE AT FALMOUTH.—Thirty houses have been destroyed at Falmouth, together with a large amount of property, and causing great distress to many families. The fire broke out on Ludgate-hill, it is supposed in the store at the back of a grocer's shop. Four houses were ultimately pulled down, one on either side at both ends of the street. These measures were so far successful, and the loss was limited to twenty-six houses burnt and four pulled down.

LITERARY INQUIRERS IN THE COURT OF PROBATE. Considerable facilities have been afforded by Sir Cresswell Cresswell for the admission of literary inquirers to the principal registry of her Majesty's Court of Probate. The regulations have been published. Visitors are allowed without fee to search the calendars, to read the registered copies of wills proved before the year 1700, the probate and administration act books to the same date, and to make extracts from such wills and books.

THE BISHOP HOOPER MONUMENT.—The monument to Bishop Hooper at Gloucester, erected on the site of his martyrdom, is (says the *Bristol Mercury*) now nearly complete. The design consists of a pedestal with open canopy, surmounted by richly-carved pinnacles and a crocketed and carved spire. The monument is about 40 feet high, and the committee have advertised for designs for a statue, to be 7 feet high, and the cost not to exceed 100 guineas.

ARCHITECTURAL AND ARCHÆOLOGICAL SOCIETY OF DURHAM AND NORTHUMBERLAND.—Under this title a new society has been established "to promote the study of architecture and archæology, to preserve architectural and other ancient remains, and to improve, as far as may be, the character of ecclesiastical and other edifices to be erected in future." The Society will meet for the reading and examination of works of architectural interest from time to time, and also hold one general annual meeting.

TAUNTON SCHOOL OF ART.—On Monday, Tuesday, and Wednesday, in last week, the Government Inspector attended at this school for the purpose of making his annual examination of the drawings, &c. The examination was open to students at other schools, and to persons receiving private tuition. The number examined was 200. The inspector expressed himself highly pleased with the examination. The number of local medals awarded was twenty-three; works selected for national competition, nine.

FALL OF AN ARCH UNDER A CANAL IN SCOTLAND.—A portion of the arch under the Monkland Canal, close to the entrance of the Summerlee and Gartsherrie branch, lately fell in, and the water dashed out into the burn beneath, which, from the great body of water escaping, soon had all the appearance of a large river. The whole stretch of the canal, from Sheepford Locks on the east to the Blackhill Locks on the west, was drained, so that there is about a mile of the canal entirely emptied.

PIPE JOINTS.—Mr. Lesourd has recently patented an improvement in joining pipes, communicated by Mr. Lemoine. The specification, filed by Mr. Henry, patent agent, Fleet-street, describes the invention as consisting in fitting round the pipe junction or contiguous ends, a hollow box consisting of two parts, hinged or otherwise, held together; into which, when closed, a quantity of cement, luting, or other suitable agent, is run, so as to stop any opening that may occur at the junction. The box may be left on or removed: in the latter case, however, the cement is left round the joint. The box has feed and air openings. Sulphur is recommended as the plugging agent, to be used in a state of fusion.

THE DRAINAGE OF BRIGHTON.—According to a letter from Mr. Somers Clarke, under the consideration of the works committee of the council of Brighton, the Brunswick-square commissioners are about to take the drainage of their district, and probably of the rest of Hove, into the sea opposite Western-street. The committee had an interview with the Brunswick-square and terrace commissioners, but the latter held out no hopes of altering their determination. They stated that their reason for not draining to the west was, that they were afraid it would return on them. At the very point they had selected for their outfall, were 28 machines, besides 150 between that spot and the battery.

SOCIETY FOR THE ENCOURAGEMENT OF THE FINE ARTS.—On Wednesday evening, the third *conversazione* of this society took place at the Galleries of the Society of British Artists, Suffolk-street, Pall-mall, the walls of which, hung with the pictures constituting the exhibition of the year, and brilliantly lighted with gas, presented an admirable *coup-d'œil*. The music, under the direction of Mr. Alfred Gilbert, comprised a selection from the works of Mozart.

AN ENGRAVING MACHINE.—A machine has been invented by a practical steel engraver which promises, according to the *Mechanics' Magazine*, to revolutionize the arts of metal engraving and cameo cutting. The most elaborate medals of the celebrated engraver Andrieu, struck during the Consulate and the Empire of Napoleon I., have been copied by the new process, it is said, with faultless precision, and in an incredibly short space of time.

A SELF-ACTING TROWEL.—A machine for making drain-pipes of cement underground has been invented by a Mr. Watson, in Ohio, and appears to dispense entirely with hand labour. He fixes a cutter to the ploughshare, which cuts down to the required depth in the subsoil, and forms a proper channel for the flow of water. Besides this, the plough carries a hopper filled with hydraulic cement: this cement flows downwards, while the implement is in motion, into a spiral conical trowel, which, moving slowly round, leaves behind a complete tube, requiring but a few hours' drying to become a permanent drain.

TELEGRAPHIC PROGRESS.—It is said collodion forms an insulator of extraordinary power, and that the Government will henceforth insist on all submarine telegraphs under their control or influence being coated with it; whatever additional insulation or protection, whether with gutta percha, india-rubber, or anything else be provided. The thinnest possible film, we hear, has been found to be equivalent to the usual thickness of other insulators. It is to be hoped no Atlantic telegraph will be laid anew without well considering and testing, at all events, what is reported of collodion, with the view of adopting it for interior coating, if what is said of it be correct.

THE LEICESTERSHIRE ARCHITECTURAL SOCIETY.—The usual bi-monthly meeting of this Society was held in the Town Library, Guildhall, Leicester, on the 31st ult. A correspondence from the editor of the *Gentleman's Magazine* was read, from which it appeared that there is a probability that, after an existence of 130 years, its publication will be discontinued. Some new members of the Society were elected, and various objects of interest exhibited. The Rev. J. H. Hill then read a paper upon the Langtons of Lincolnshire, illustrated by two worked pedigrees of that family.

ARCHITECTURAL EXHIBITION.—Mr. W. Burges writes,—Will you kindly permit me to supply an omission in your notice of the Architectural Exhibition? In it you have done me the honour to mention my name as the designer of the sculpture at Gayhurst, but you have forgotten to say that the credit of the execution belongs to Mr. Thomas Nicholls, of Lambeth; and, indeed, with regard to the procession of the Boar's Head, the credit is almost entirely his own; my part of the work being limited to the supplying the costume, and suggesting a few hints as the work proceeded. I am sure, from the courtesy which you invariably show to all artists, you will not, in justice to Mr. Nicholls, refuse the insertion of the above.

OPENING OF A NEW DRINKING FOUNTAIN AT CAMBERWELL GREEN.—On Wednesday afternoon, a drinking fountain was opened by the Hon. and Rev. Bury Caple, vicar of St. Giles's, Camberwell. The fountain is the gift of Miss Caroline Edwards and the Metropolitan Free Drinking Fountain Association, and has been erected under the superintendence of that society. The fountain is described as a square Gothic dome in Portland stone, supported by four columns of serpentine marble, resting on a square solid pedestal. Under the dome, four jets of water spring forth from an ornamental stone in the centre. The design is by Mr. Rolles.

TENDERS.

For building new Wesleyan schools in King-street, Exeter. Mr. W. Blackmore, architect:—

Bradford	£1,120 0 0
Moass & Sons	1,065 0 0
Mitchell	1,056 0 0
Tozer	1,029 0 0
Ware & Son	996 0 0
Gardner	989 0 0
Moore	932 0 0
Woodman	870 0 0
Grant & Son (accepted)	715 0 0

For alteration and addition to a chapel at Enfield Mr. T. E. Knightley, architect. Quantities supplied:—

Patman	£1,212 0 0
Farr	1,197 0 0
Clark	1,180 0 0
Field & Son	1,165 0 0
Cushing	1,159 0 0
Williams	1,090 0 0
Harridine	960 0 0

For alterations and additions, Place Farm, Folkington, Sussex. Mr. Robert Blessley, architect:—

Brickwork, Mason's Work, &c.

Thompson	£161 10 0

Carpenter's Work.

Gaell	134 12 6

Painting, &c.

Isard	63 9 6
	£359 12 0

For finishing No. 26, Gore-road, Kensington. Mr. Robert Blessley, architect:—

Fawcett (accepted)	£1,540 0 0

For erecting stabling, &c., to No. 28, Gore-road, Kensington. Mr. Robert Blessley, architect:—

Fawcett (accepted)	£295 0 0

For shops, dwelling-houses, and warehouse, in Paternoster-row, for Messrs. Knight & Sons. Mr. Andrew Wilson, architect:—

Axford	£5,214 0 0
Ennor	4,987 0 0
Pritchard & Shelton	4,754 0 0
Hill, Keddell, & Robinson (accepted)	4,650 0 0

For St. Michael's Schools, Handsworth, Birmingham. Mr. E. W. Griffiths, architect. Quantities supplied by C. Isaac Newey:—

Cresswell	£1,100 0 0
Fisher	1,027 16 0
Ramsey	1,023 5 0
Harley	1,000 0 0
Wilson	1,000 0 0
Chambers & Hilton	944 0 0
Barker (accepted)	940 0 0

For rebuilding the British Prudential Assurance Offices, 35, Ludgate-hill. Mr. R. L. Roumieu, architect. Quantities supplied by Messrs. Welsh & Atkinson:—

I'Anson	£4,927 0 0
Mansfield	4,827 0 0
Myers	4,510 0 0
Pritchard	4,492 0 0
Batterbury	4,464 0 0
Sewell	4,456 0 0
Piper & Wheeler	4,350 0 0
Lawrence	4,270 0 0
Ashby & Sons	4,251 0 0
Brown & Robinson	4,243 0 0
Burton	4,063 0 0*

* Including a credit for the old building.

For Congregational Meeting House, Barnsbury, Islington. Mr. James Wesley Reed, architect:—

Warne	£2,490 0 0
Sale	2,433 0 0
Carter (accepted)	2,390 0 0

For erecting new screen wall and Portland stone balustrade, sundry alterations to house at Whitmore Farm, and various other works on the estate of Mr. Holloway, at Sunninghill, Berks. Mr. Alfred Smith, architect:—

Woodward	£1,995 0 0
Oades	1,989 0 0
Sewell & Son	1,987 0 0
Bowley, Brothers	1,700 0 0
Colls & Co. (accepted)	1,644 0 0

For alterations and repairs to Bromley Chapel, Kent. Messrs. Searle & Co., architects:—

Tully & Sons	£474 0 0
Turner and Sons	459 0 0
Clemence	424 0 0
Sands	420 0 0
Howlet & Brown	379 0 0

For the erection of a warehouse and embankment at Wapping, for Mr. E. Phillips. Mr. Henry Harrison, architect. Quantities supplied:—

Piper & Wheeler	£8,760 0 0
Brown & Robinson	8,682 0 0
Ashby & Horner	8,598 0 0
Cubitt	8,558 0 0

For new wing to Lansdown Villa, Bath, for Mr. W. Douglas; Mr. W. J. Green, architect:—

Rogers (accepted)	£807 0 0

For the enlargement of the Britannia Iron Works, Bedford, for Messrs. James & Frederick Howard. Mr. Robert Palgrave, architect:—

Day	£1,850 0 0
Freshwater	1,825 0 0
Bryant	1,741 19 0
Francis & Son	1,649 6 0
Conquest (accepted)	1,528 7 4

For parsonage-house for the district of St. Paul's, Haggerstone. Mr. Ewan Christian, architect:—

	House.	Gas.	Total.
	£.	£.	£.
Bishop	2,510	29	2,539
Myers	1,897	33	1,930
Rhodes & Roberts	1,910	19	1,929
Wells	1,904	22	1,926
Piper & Wheeler	1,887	26	1,913
Jackson & Shaw	1,798	23	1,821
Brown & Robinson	1,784	24	1,808
Scott	1,790	17	1,807
Dove, Brothers	1,760	15	1,775

Blackpool Pier.—The tender (£11,540) of Messrs. Laidlaw & Son, of Glasgow, has been accepted for the construction of the Blackpool promenade pier. Messrs. J. B. & E. Birch, engineers. Quantities supplied by Messrs. R. L. Curtis & Son.